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PRC

PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

ACE BATTERY, INC.
INDIANAPOLIS, INDIANA
IND 016 389 546

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

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EPA Region	:	5
Site No.	:	IND 016 389 546
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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the ACE Battery, Inc. (ACE), facility in Indianapolis, Marion County, Indiana. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified.

The ACE facility operates as a scrap battery recycling plant specializing in lead-bearing materials. The facility receives spent lead-acid batteries from multiple sources throughout 22 of the United States and Puerto Rico. Batteries received by ACE include large industrial, automotive, small golf cart and motorcycle, marine, telephone standby, light tool, railroad, heavy equipment, lighting, power generation, airplane, military, and lawnmower batteries. The batteries are transported by ACE to its facility, where they are processed to recover recyclable lead and plastic (polypropylene). After their initial recovery, these recyclable materials are transported by ACE to its customers for further recycling.

The processing of batteries at the facility generates the following waste streams: dilute sulfuric acid (spent electrolyte) (D002, D004, D006, and D008); untreated wastewater (D002, D004, D006, and D008); wastewater treatment sludge (D004, D006, and D008); ground and wasted polypropylene (D004, D006, and D008); recovered lead plates, slugs, and oxides (D004, D006, and D008); and hard rubber (ebonite) battery casings (D004, D006, and D008).

The spent electrolyte is treated to remove residual lead, arsenic, and cadmium and is neutralized before discharge to the Indianapolis publicly owned treatment works (POTW). Wastewater containing spent electrolyte, storm water, and wash water from the MA Separator (SWMU 6) is routed to the Wastewater Treatment System (SWMU 5) and is handled in the same manner as the spent electrolyte. Residual lead, arsenic, and cadmium are precipitated from the wastewater as sludge, which is combined with other recovered lead for off-site smelting. Crushed, ground, and washed polypropylene battery casings are loaded onto trailers and transported off site for further recycling. The extracted lead plates, slugs, and oxides, and the lead-bearing wastewater treatment sludge are

loaded onto trailers and transported off site to lead recovery smelters. Before 1984, ACE processed hard rubber (ebonite) battery casings by the same methods currently used for plastic casings. However, the MA Separator (SWMU 6) did not effectively remove the residual lead content from the porous ebonite casings; therefore, they were included into lead group shipments for smelting. ACE stored this hard rubber in piles at the facility until 1985, when they were removed at the order of Indiana Department of Environmental Management (IDEM). Currently ACE receives periodic shipments of hard rubber casings but does not process them. They are packaged on wooden pallets and sold to a permitted reclaimer.

The facility has operated since the mid-1940s. The facility occupies 0.75 acre in a mixed-use area and employs about eight people. ACE originally filed a Part A permit application in 1980 to claim interim status for treatment of wastewater in a tank. ACE applied for the withdrawal of its permit application in 1982 based on the wastewater treatment unit exemption per 40 CFR 265.1 (c)(10). EPA concurred with ACE and granted a withdrawal of the permit application. ACE applied for reinstatement of its interim status in 1985 based on new regulations regarding its treatment of the waste received from off site. Interim status was reinstated for treatment of wastewater in a tank located at the Wastewater Treatment System (SWMU 5). Since that time, the State of Indiana has conducted numerous facility inspections based on the belief that ACE qualifies as a treatment, storage, or disposal (TSD) facility and is therefore subject to RCRA. ACE has consistently claimed exclusion from RCRA based on its interpretation of the lead-acid battery recycling exemption. Though it is currently under two separate administrative orders to comply with state and federal hazardous waste regulations, ACE is seeking a variance from classifying as solid waste, the materials it currently receives and processes.

The PA/VSI identified the following 15 SWMUs and two AOCs at the facility:

Solid Waste Management Units

1. Unloading Dock
2. Saw Room and Tumbler
3. Lead Group Pile
4. Collection Sumps and Troughs
5. Wastewater Treatment System
6. MA Separator
7. Industrial Lead Storage Yard

8. Nonindustrial Lead Storage Yard
9. Polypropylene Loading Area
10. Lead Loading Area
11. Warehouse (1960 S. Meridian)
12. Former Hard Rubber Pile (Process Building)
13. Former Hard Rubber Pile (1960 S. Meridian Warehouse)
14. Former Wastewater Discharge Area
15. Former Furnace

Area of Concern

1. Bluff Road Runoff Area
2. On-Site Release Areas

No releases to on-site or off-site groundwater, surface water, or air have been identified. However, off-site soils may have been impacted by runoff from the facility. There have been no reported releases that may have affected nearby human populations. The nearest occupied residences are located about 1,000 feet from the facility to the northeast, east, and southeast.

The potential for release to groundwater from historical operations at SWMU 14 is considered moderate to high based on the documented discharge of lead-bearing wastewater to unprotected soils. Also, there is moderate potential for release to groundwater from AOC 2. Because some areas of the facility were unprotected by concrete paving, groundwater may have been impacted from leaching in contaminated soils. Current operations including the remaining SWMUs and AOC pose a low potential for release to groundwater because the entire facility is covered by concrete and there are no apparent contributing sources present at the site. No documented groundwater releases have occurred. The only well sampling conducted near the facility reportedly occurred two to three blocks south of the facility. In 1984, a private well was sampled and the samples were analyzed for metals; the results showed no lead. The well was abandoned in favor of a public water supply connection. No other groundwater sample analytical results associated with nearby residential and industrial wells were found. Groundwater use in the area is limited to industrial use and potable water is supplied by the City of Indianapolis. Indianapolis draws its water supply from the White River and Fall Creek. Groundwater flow direction at the facility could not be determined during the PA/VSI. There is no on-site production well and all process water used by ACE is supplied by the City of Indianapolis. A total of 129 water wells have been identified within 3 miles of the facility; however, the current use

of these wells is unknown. The nearest of these wells is less than 1,500 feet east of the facility and is located at the northwest intersection of Indianapolis Union Railroad and Madison Avenue. No drilling or completion records associated with this well were found. The nearest well for which drilling and completion data are available is located 2,000 feet south-southwest of the facility. This well was completed on March 16, 1992, for industrial use. The water elevation at this well is reported to be 617 feet above mean sea level.

The potential for release from all SWMUs and the AOCs to surface water is low. No observed surface water releases have occurred. Surface water runoff at the facility is controlled by a concrete-reinforced dike that extends along the north, west, and south sides of the property. All storm water that falls on the property is directed to the lowest (west) portion of the diked area and is pumped to the Wastewater Treatment System (SWMU 5) before discharge to the city sewer. The nearest surface water body is the White River, which is located 2,500 feet due west of the facility. The nearest sensitive environment is located 1,000 feet northwest of the facility along the east edge of the White River. This sensitive environment is classified as Palustrine, temporarily flooded, diked and impounded, and forested with broad-leaved deciduous foliage.

The potential for release from all SWMUs and AOCs to air is low. The materials processed or stored at the facility are dense solids; there is little potential for airborne particulates to be generated during processing. All outside hazardous material storage areas such as the Industrial Lead Storage Yard (SWMU 7), Nonindustrial Lead Storage Yard (SWMU 8), and the Lead Loading Area (SWMU 10) are not exposed to cross winds that would permit air-borne transport of contaminants. Additionally, the facility is surrounded by a 15-foot high fence to minimize any potential airborne dust from crossing the property boundary. Facility workers, however, are required to wear dust particle masks during operating hours because of their close proximity to processed materials.

The potential for release from all SWMUs to on-site soils is low to moderate. The entire facility is covered by continuous concrete pavement and low areas are diked to contain storm water runoff. The Collection Sumps and Troughs (SWMU 4) present a potential pathway for contaminants to impact soils beneath the facility. This is due to the in-ground construction of the sumps combined with their unknown structural integrity. On-site soils may also have been impacted by the Former Wastewater Discharge Area (SWMU 14) where untreated wastewater containing spent electrolyte and lead oxides

was discharged to a ground absorption system. Other historical operations, such as storage of lead-bearing materials in unprotected areas, may have impacted on-site soils that are now covered by concrete. Numerous inspections conducted by Indiana State Board of Health (ISBH) and IDEM have referenced potentially contaminated soils, however there are no documented occurrences of releases. The facility is surrounded by fencing and is secured by locked gates when not in operation.

The potential for release from the facility to contiguous off-site soils is low to moderate. No observed releases to off-site soils have occurred. However, off-site soil boring samples collected in 1987 just south of the facility along Bluff Road (AOC 1) had total lead concentrations of up to 10,000 parts per million (ppm). It has not been determined whether this contamination is directly linked to runoff from the ACE facility.

PRC recommends further investigation of potential lead contamination from runoff to soils located along Bluff Road (AOC 1). Based on the lack of historical information provided by ACE, PRC recommends that ACE provide all operational records for the Former Wastewater Discharge Area (SWMU 14). ACE should also provide a chronology of historical site improvements including concrete pavement, building modifications, and containment structures that were added to the facility over the years. This chronology should be accompanied by a description of corresponding waste management activities in unprotected areas. PRC also recommends that secondary containment be provided at the Saw Room and Tumbler (SWMU 2) and the Industrial Lead Storage Yard (SWMU 7), where spent electrolyte is initially drained from batteries. Also, all Collection Sumps and Troughs (SWMU 4) should be evaluated for structural integrity and repaired if necessary. No further action is recommended for the remaining SWMUs.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. R05032 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Ace Battery, Inc. (ACE), facility (EPA Identification No. IND 016 389 546) in Indianapolis, Marion County, Indiana. The PA was

completed on January 21, 1994. PRC gathered and reviewed information from the Indiana Department of Environmental Management (IDEM), EPA Region 5 RCRA files, ACE files, and communications with ACE representatives. The VSI was conducted on January 27 and 28, 1994. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified 15 SWMUs and two AOCs at the facility. The VSI is summarized and 20 inspection photographs are included in Appendix A. Field notes from the VSI are included in Appendix B.

During the VSI, ACE representatives requested that its suppliers and buyers of recyclables not be named in this report. Because lead and plastics are publicly traded commodities, ACE has claimed client confidentiality; should ACE's buyers become known to competitors, ACE's market share could be compromised.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors.

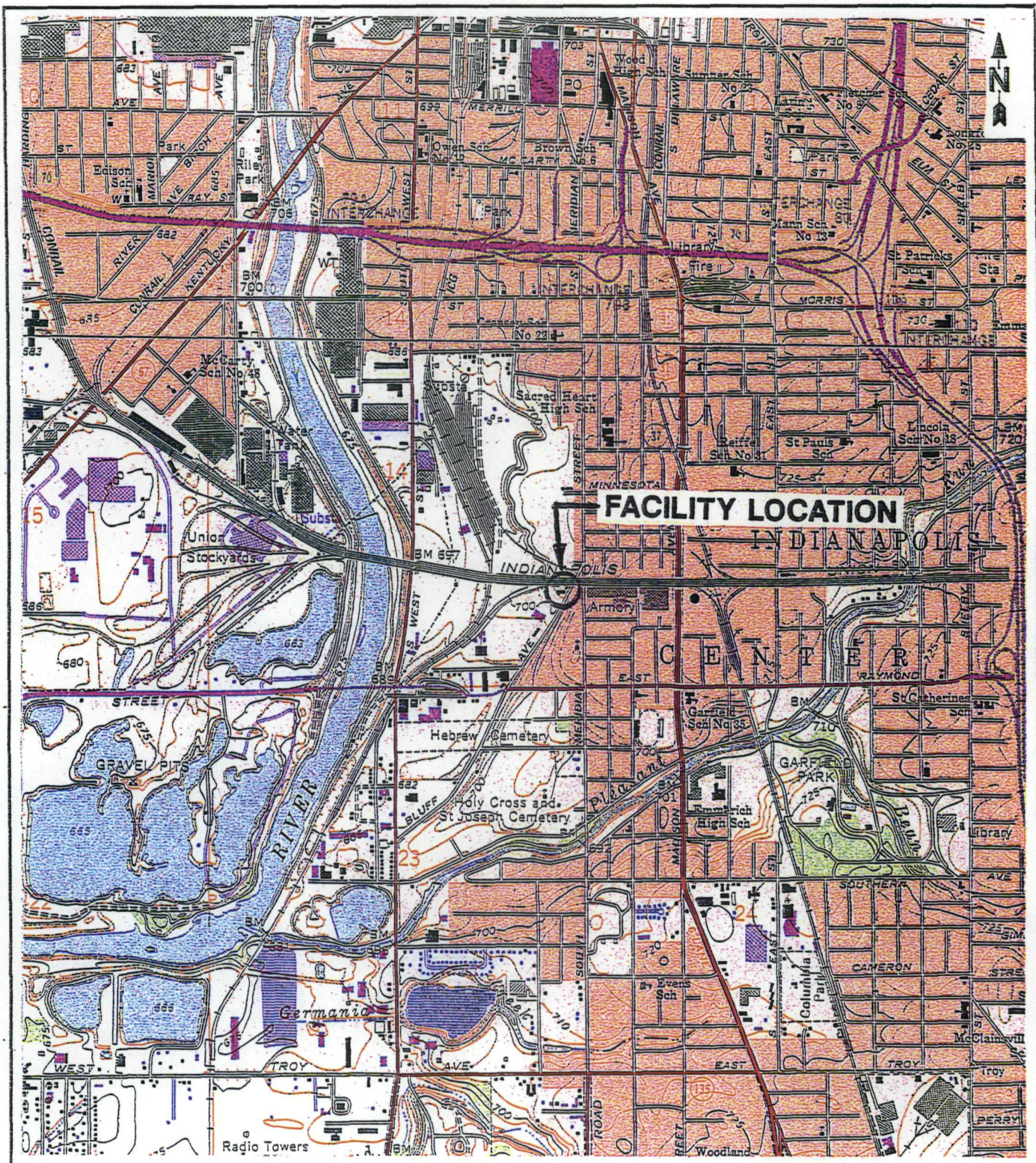
2.1 FACILITY LOCATION

The ACE facility is located at 1966 Bluff Road in Indianapolis, Marion County, Indiana. Figure 1 shows the location of the facility in relation to the surrounding topographic features (latitude 39°44'13" N and longitude 86°10'06" W) (IDEM 1991b). The facility occupies 0.75 acre in a mixed-use area.

The facility is bordered on the north, west, and south by Sam Wolkoff Industries (SWI) and on the east by Bluff Road. Directly across Bluff Road from the facility is a warehouse bearing the address of 1960 S. Meridian Street. Ace leases the warehouse from Todd, Kirkham, and Tom Leasing Company (TKT). ACE is in the process of purchasing the warehouse. East and south of the warehouse are mixed-use residential and industrial areas.

2.2 FACILITY OPERATIONS

The ACE facility operates as a scrap battery recycling plant specializing in lead-bearing materials (Harrison & Moberly 1988a). The facility receives spent lead-acid batteries from multiple sources throughout 22 of the United States and Puerto Rico. Batteries received by ACE include large industrial, automotive, small golf cart and motorcycle, marine, telephone standby, light tool, railroad, heavy equipment, lighting, power generation, airplane, military, and lawnmower batteries. ACE processes an average of 3,500 batteries each day. The batteries are transported by ACE to its facility where they are processed to recover recyclable lead and plastic (polypropylene). Batteries are unloaded at the Unloading Dock (SWMU 1) where they are staged prior to processing. Nonindustrial batteries are mechanically broken and sorted at the Saw Room and Tumbler (SWMU 2) for the primary purpose of reclaiming lead for sale to smelters. A secondary material reclaimed is the



SCALE 1:12,000

2 1 0 1 MILE

500 0 500 1000 1500 2000 2500 3000 3500 FEET

SCALE 1" = 1,000'

SOURCE: MODIFIED FROM USGS, MAYWOOD, INDIANA, QUADRANGLE, 1986, AND INDIANAPOLIS WEST, INDIANA, QUADRANGLE, 1980

QUADRANGLE LOCATION

ACE BATTERY, INC.
INDIANAPOLIS, INDIANA

FIGURE 1
FACILITY LOCATION

ENVIRONMENTAL MANAGEMENT, INC.

polypropylene battery casings which are sold to plastics recyclers. The batteries are broken either manually or using a slow-speed saw. Spent sulfuric acid drops out of the crushed batteries by gravity, flows through Collection Sumps and Troughs (SWMU 4) to the Wastewater Treatment System (SWMU 5) where it is collected in a tank, is treated to remove residual metals, and is neutralized for discharge to the Indianapolis publicly owned treatment works (POTW). The lead drops out of SWMU 2 and is accumulated in the Lead Group Pile (SWMU 3) and the battery casings are ground, washed, and separated in the MA Separator (SWMU 6). Both lead and plastics are loaded for transport at the Lead Loading Area (SWMU 10) and the Polypropylene Loading Area (SWMU 9) to off-site merchants for further recycling. Nonindustrial and industrial batteries are processed separately and the recovered lead is accumulated separately because of smelter requirements. Therefore, the recovered lead is accumulated at the Nonindustrial Lead Storage Yard (SWMU 8) or the Industrial Lead Storage Yard (SWMU 7) depending on the type of batteries processed. Solid wastes generated from facility operations and the SWMUs where they are managed are discussed in detail in Section 2.3.

ACE, a division of Battery Salvage, Inc., has operated at the facility since 1967 and employs about eight people. The main facility located at 1966 Bluff Road covers about 0.75 acre, of which about 16,800 square feet is occupied by the process area building and offices. The remaining 15,870 square feet is covered by concrete pavement for truck access during loading and unloading. The leased warehouse, located directly across Bluff Road at 1960 S. Meridian (SWMU 11), covers about 14,820 square feet. The warehouse is divided in the middle by a breezeway and loading dock. Only the south side of the warehouse is currently used by ACE.

Battery recycling activities began at the main facility in the mid-1940s under ownership of Mr. Tom Clouse. In 1963, most of the facility building was destroyed by fire. In 1967, Battery Salvage, Inc., purchased the facility, and its division, ACE, began operations there. Over the years, the battery salvaging process underwent several changes as the materials used to manufacture batteries were improved and new methods and equipment were developed to extract reclaimable battery parts. Before 1970, batteries were manufactured in hard rubber (ebonite) cases and were topped with a tar-like material to contain the battery internals (lead plates). Operations at the facility during this time consisted of manually breaking the batteries and burning the tar tops in a large furnace (SWMU 15). The lead plates and oxides were collected manually and transported off site for smelting. The hard

rubber cases were reportedly disposed of off site at undetermined locations. Spent electrolyte was drained from the batteries, collected in a large fiberglass holding tank (SWMU 14), and discharged to a ground absorption system (SWMU 14) through a layer of crushed limestone (ISBH 1976). Apparently, the spent electrolyte was neutralized upon contact with the limestone carbonates, and the neutralized effluent was discharged to the ground. No information was found to indicate where this operation occurred. High-speed saws were introduced in the early 1960s to replace manual opening of the batteries. Plastic (polypropylene) casings soon replaced the hard rubber casings, and by the mid-1960s a new market developed for recycled plastics. In the late 1960s, M.A. Industries of Peachtree, Georgia, developed a system to separate washed plastic from recoverable lead. ACE purchased one of these systems, called the MA Separator (SWMU 6), and began processing both polypropylene and hard rubber battery casings. Soon thereafter, slow-speed saws were introduced for increased efficiency in opening the batteries. The original MA Separator purchased by ACE is still in operation.

Before the mid-1940s, the facility property was undeveloped and was used for coal storage by a railroad. No other operations are known to have occurred there until battery salvaging began in the mid-1940s.

2.3 WASTE GENERATION AND MANAGEMENT

This section describes waste generation and management at the ACE facility. ACE manages spent lead-acid batteries and reclaims them to recover lead and plastic. The materials extracted from the batteries are solid wastes by definition and hazardous by characteristic; however, they are referred to as recyclable materials according to 40 CFR 261.6 (a)(2)(v). Throughout this report, these solid wastes are referred to as recyclable materials. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs, is shown in Figure 2. The facility's waste streams are summarized in Table 2.

ACE receives spent industrial and nonindustrial batteries for reclamation. ACE processes these batteries to remove lead and polypropylene for resale to smelters and the plastics industry, respectively. The processing of these batteries generates the following solid waste streams as

TABLE 1

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status[c]
1	Unloading Dock	No	Active for accumulation of recyclable material
2	Saw Room and Tumbler	No	Active for processing of recyclable material
3	Lead Group Pile	No	Active for accumulation of recyclable material
4	Collection Sumps and Troughs	No	Active for collection of hazardous waste
5	Wastewater Treatment System	Yes[b]	Active for treatment of hazardous waste
6	MA Separator	No	Active for treatment of recyclable material
7	Industrial Lead Storage Yard	No	Active for accumulation of recyclable material
8	Nonindustrial Lead Storage Yard	No	Active for accumulation of recyclable material
9	Polypropylene Loading Area	No	Active for collection of recyclable material
10	Lead Loading Area	No	Active for collection of recyclable material
11	Warehouse (1960 S. Meridian)	No	Inactive for accumulation of recyclable material since 1985
12	Former Hard Rubber Pile (Process Building)	No	Inactive for accumulation of recyclable material since 1985

TABLE 1 (Continued)

SOLID WASTE MANAGEMENT UNITS

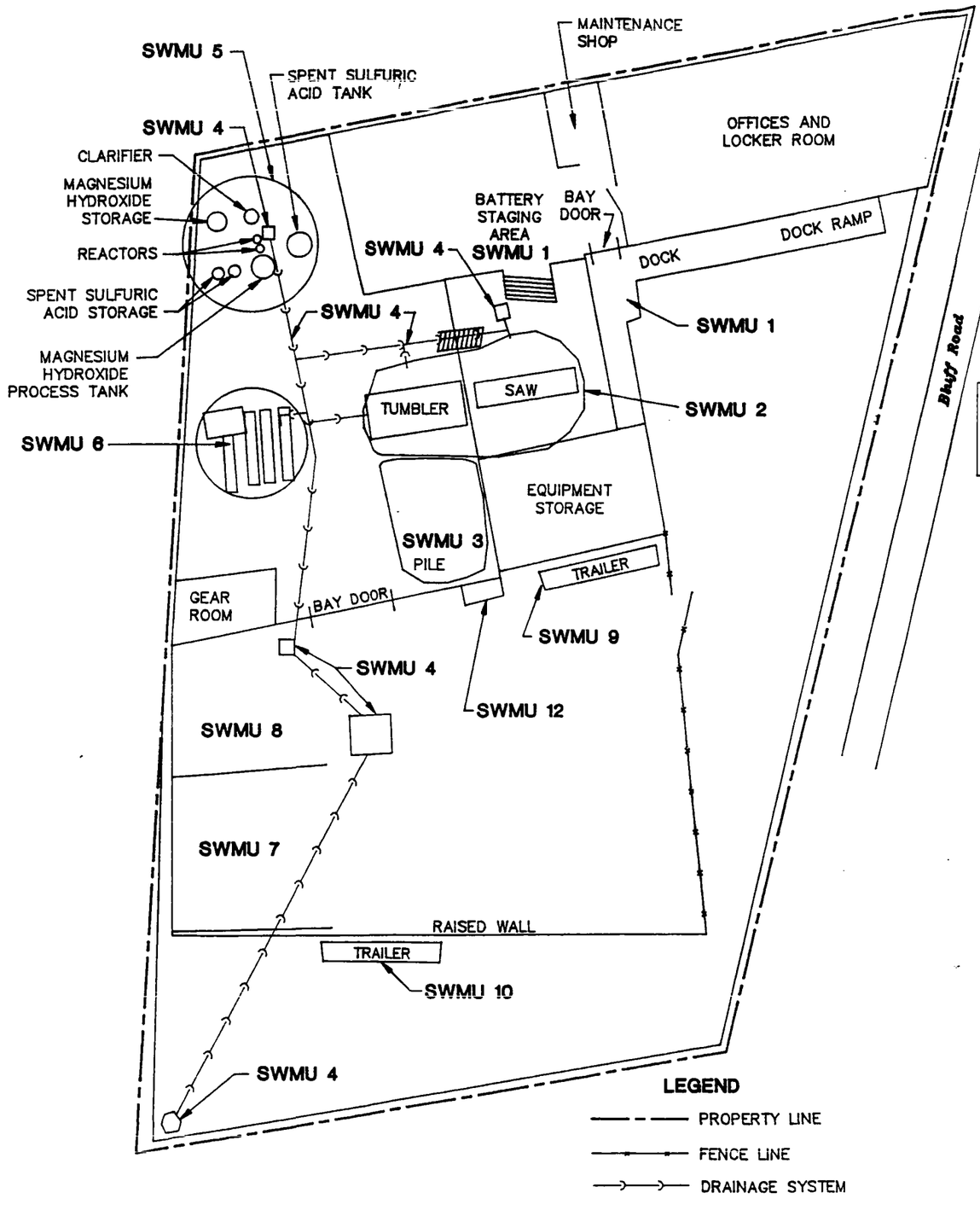
SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status[c]
13	Former Hard Rubber Pile (1960 S. Meridian Warehouse)	No	Inactive for accumulation of recyclable material since 1985
14	Former Wastewater Discharge Area	No	Inactive, received discharge of untreated wastewater, activity ceased in late-1970's
15	Former Furnace	No	Inactive, received tar-topped batteries for lead recovery, activity ceased in late-1970's

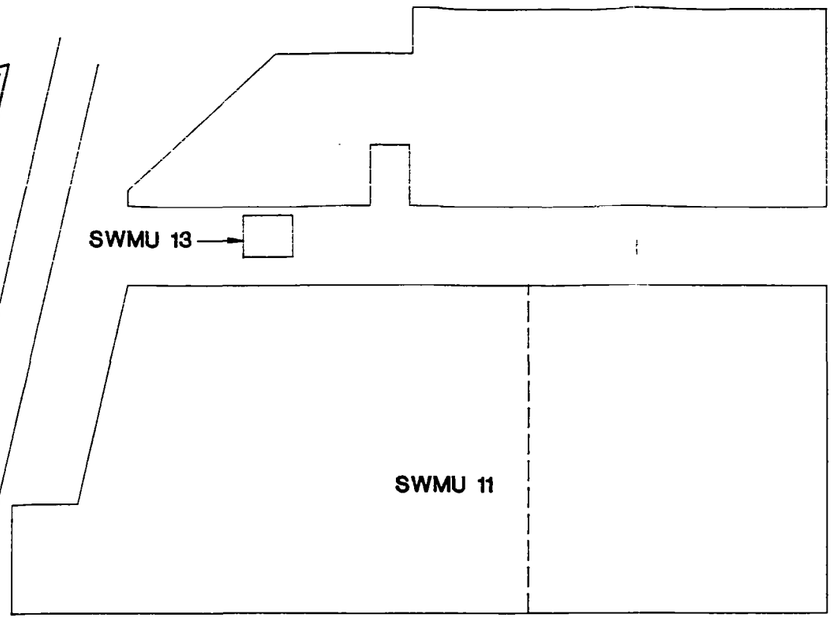
Notes:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.

[b] Unit originally qualified under interim status but later exempted as a totally enclosed wastewater treatment system.

[c] According to 40 CFR 261.6, recyclable materials that contain characteristic hazardous constituents are regulated under 40 CFR 266 Subpart G and applicable provisions of parts 270 and 124.





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SOLID WASTE MANAGEMENT UNITS

SWMU 1	Unloading Dock
SWMU 2	Saw Room and Tumbler
SWMU 3	Lead Group Pile
SWMU 4	Collection Sumps and Troughs
SWMU 5	Wastewater Treatment System
SWMU 6	MA Separator
SWMU 7	Industrial Lead Storage Yard
SWMU 8	Nonindustrial Lead Storage Yard
SWMU 9	Polypropylene Loading Area
SWMU 10	Lead Loading Area
SWMU 11	Warehouse (1960 S. Meridian)
SWMU 12	Former Hard Rubber Pile (Process Building)
SWMU 13	Former Hard Rubber Pile (1960 S. Meridian)
SWMU 14	Former Wastewater Discharge Area (not shown)
SWMU 15	Former Furnace (not shown)

AREAS OF CONCERN

AOC 1	Bluff Road Runoff Area (not shown)
AOC 2	Onsite Release Areas (not shown)

15' 0 15' 30'
SCALE: 1" = 30'

SOURCE: MODIFIED FROM IDEM 1990c; HARRISON & MOBERLY 1994

ACE BATTERY, INC.
INDIANAPOLIS, INDIANA

FIGURE 2
FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

ACE-BATTONS -- 04/12/94 -- RAO -- 300-810503NNA

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit
Spent lead-acid batteries/D002, D004, D006, and D008	Off-site suppliers	1
Spent electrolyte/D002, D004, D006, and D008	Opening and draining of battery cells	2, 4, 5, and 7
Untreated wastewater/D002, D004, D006, and D008	Opening and draining of battery cells; periodic discharge from MA Separator; and storm water collection	4, 5, 6, 7, and 14
Wastewater treatment sludge/D004, D006, and D008	Precipitation of lead, arsenic, and cadmium during wastewater treatment	3, 5, and 7
Ground and washed polypropylene/ D004, D006, and D008	Plastic processed through MA Separator	6 and 9
Lead plates, slugs, and oxides/D004, D006, and D008	Opening of batteries; precipitation during wastewater treatment; processing through MA Separator	2, 3, 4, 5, 6, 7, 8, and 10
Hard rubber casings/D004, D006, and D008[b]	Former processing of hard rubber-cased batteries	11, 12, 13, and 15

Notes:

[a] Excluding spent electrolyte and untreated wastewater which are hazardous wastes by characteristic, these solid wastes are hazardous by characteristic, however, they are referred to as recyclable materials according to 40 CFR 261.6

[b] No longer generated at the facility.

determined by PRC: spent electrolyte (D002, D004, D006, and D008); untreated wastewater (D002, D004, D006, and D008); wastewater treatment sludge (D004, D006, and D008); ground and washed polypropylene (D004, D006, and D008); and recovered lead plates, slugs, and oxides (D004, D006, and D008). Hard rubber casings (D004, D006, and D008) were formerly generated at the facility.

Spent batteries are received and stored at the Unloading Dock (SWMU 1). As batteries are received at the dock, they are stacked on pallets and transferred inside the building to an adjacent staging area where they await processing. In the staging area, the pallets of batteries are wrapped in shrink-wrap plastic for containment. Smaller and miscellaneous batteries are collected in plastic, steel, and cardboard drums in this area. Large industrial batteries are placed on pallets and staged separately from the other batteries. According to ACE representatives, all batteries are processed within 3 days of receipt. Industrial batteries are transferred to the Industrial Lead Storage Yard (SWMU 7) for manual opening. All nonindustrial batteries are transferred to the Saw Room and Tumbler (SWMU 2) for processing.

Spent electrolyte (D002, D004, D006, and D008) is generated as batteries are either mechanically opened at the Saw Room and Tumbler (SWMU 2) or manually opened at Industrial Lead Storage Yard (SWMU 7). The spent electrolyte consists of dilute sulfuric acid (H_2SO_4). Testing of the acid has shown that it is about 8.9 percent H_2SO_4 (OALR 1975). However, ACE could not provide test results to show the pH of the spent electrolyte. According to ACE's 1982 waste analysis plan, the average industry concentration value for pH is 0.2 pH standard units (EECI 1982). After the batteries are opened, the spent electrolyte drains onto the floor and is directed to one of five sumps located throughout the facility process area. The sumps are connected by 6-inch-deep troughs in the concrete floor.

From these Collection Sumps and Troughs (SWMU 4), the spent electrolyte flows to the main sump located at the Wastewater Treatment System (SWMU 5), where it is pumped overhead to a 12,000-gallon, aboveground, steel primary storage tank. This tank is supplemented by two 2,500-gallon, aboveground, steel secondary storage tanks. The spent electrolyte is pumped from the primary tank into the first of two 300-gallon, aboveground, steel, reactor tanks. Initial mixing with magnesium sulfate ($MgOH_2$) occurs in the reactor tanks. The mixture is then pumped to the 2,400-gallon aboveground, steel clarifier tank, where solids containing lead (D008), arsenic (D004), and

cadmium (D006) are precipitated out. The clarified effluent is then neutralized before being discharged to the Indianapolis POTW under Industrial Discharge Permit 334102.

Untreated wastewater (D002, D004, D006, and D008) generated throughout the facility may contain a mixture of spent electrolyte, storm water, and wash water spillage from the MA Separator (SWMU 6). All wastewater is directed to Collection Sumps and Troughs (SWMU 4) and flows by surface piping or troughs through SWMU 4 to the Wastewater Treatment System (SWMU 5) when it is managed as described above. Wastewater is batch processed at a rate of about 2,400 gallons each day. Each batch represents the total volume of the clarifier tank. Before 1976, untreated wastewater was collected in a fiberglass aboveground storage tank (SWMU 14) and discharged to a ground-absorption system, the Wastewater Discharge Area (SWMU 14).

Wastewater treatment sludge (D004, D006, and D008) is generated through precipitation at Wastewater Treatment System (SWMU 5). $MgOH_2$ is mixed with the spent electrolyte and precipitates the metals out of the wastewater. The precipitated metals collect as sludge at the bottom of the clarifier following each batch of treated wastewater. About 200 pounds of sludge is generated daily, is gravity drained from the clarifier to a metal hopper, and is manually carried to the Lead Group Pile (SWMU 3) where it is combined with other recovered lead materials.

Ground and washed polypropylene (D004, D006, and D008) is generated after battery casings are separated from lead plates in Saw Room and Tumbler (SWMU 2). The polypropylene casings are transferred by conveyor to the MA Separator (SWMU 6) which consists of a hammermill grinder and four 300-gallon, water-filled auger bins. The grinder crushes the casings into small fragments and empties them into the tiered series of auger bins. The metal auger bins are situated in a tiered fashion to allow sufficient washing and gravity separation of residual lead and plastic. The washed and sorted polypropylene fragments fall out in the fourth and lowest auger bin, are dumped in a steel hopper, and are blown through an overhead metal duct to the Polypropylene Loading Area (SWMU 9) to await off-site transport. The polypropylene is transferred directly into the transport trailer and is not stored on the ground.

Lead plates, slugs, and metal oxides (D004, D006, and D008) are recovered in the Saw Room and Tumbler (SWMU 2); are collected in the Lead Group Pile (SWMU 3); and in the MA Separator

(SWMU 6). The lead plates fall out to the Lead Group Pile (SWMU 3) located beneath the tumbler at SWMU 2. The lead group pile is a term used for all recovered lead-bearing materials generated during processing; the Lead Group Pile consists of lead plates, slugs, and metal oxides. The Lead Group Pile consists of a three-sided, concrete-lined storage bay that is about 15 feet wide, 30 feet long and 6.5 feet high. The bay is open on one side to allow transfer of the lead materials every 3 days to the Nonindustrial Lead Storage Yard (SWMU 8) located outside the main process building. The Lead Group Pile also receives lead-bearing wastewater treatment sludge from Wastewater Treatment System (SWMU 5), and residual lead-bearing solids that pass through the MA Separator (SWMU 6). At SWMU 6, lead fragments, heavy metal oxides, and lead-bearing mud are collected in the first, second, and third auger bins, respectively. From the auger bins, the lead-bearing materials are collected in portable plastic or metal basins measuring about 2.5 square feet. The lead plates that fall out from the Tumbler (SWMU 2), lead-bearing wastewater treatment sludge from the Wastewater Treatment System (SWMU 5), and lead-bearing solids from the MA Separator (SWMU 6) are temporarily accumulated at the Lead Group Pile (SWMU 3). As SWMU 3 approaches capacity, the lead groups are transferred to the Nonindustrial Lead Storage Yard (SWMU 8) for accumulation prior to loading at the Lead Loading Area (SWMU 10) for off-site transport to lead recovery smelters.

ACE formerly processed hard rubber battery casings (D004, D006, and D008). The use of these casings has decreased significantly since the mid-1970s when plastic casings were introduced to the industry. Until about 1984, ACE processed hard rubber casings using the same methods currently in use at the facility. However, the MA Separator (SWMU 6) was unable to remove lead from the casings by washing because of the rubber's inherent porosity. As a result, the hard rubber was accumulated at the Lead Group Pile (SWMU 3), Warehouse at 1960 S. Meridian (SWMU 11), and at the Former Hard Rubber Piles (SWMU 12 and 13). From these locations, ACE included the material into shipments of recovered lead for smelting.

2.4 HISTORY OF DOCUMENTED RELEASES

There is no history of documented releases to groundwater, surface water, or air at the facility. However, this section discusses a documented release to on-site soils with the potential for release to shallow groundwater.

From 1940 to 1976, the facility discharged untreated wastewater into an on-site ground absorption system. Following an Indiana State Board of Health (ISBH) inspection of the facility in 1975, it was discovered that ACE was discharging untreated wastewater containing lead (D008) and spent electrolyte (D002) through a layer of crushed limestone to an in-ground absorption system. Analysis of the wastewater showed it to contain lead concentrations of 134 milligrams per liter (mg/L) (ISBH 1976). ACE representatives could not provide information regarding the exact location of this discharge area. However, details on this area are presented in the discussion of the Former Wastewater Discharge Area (SWMU 14) in Section 3.0.

Soils throughout the facility are potentially contaminated from historical operations involving accumulation of lead-bearing materials in unprotected areas throughout the facility. This suspected contamination cannot be linked to any past or presently identified SWMU except for SWMU 14. Operations at SWMU 14, the Former Wastewater Discharge Area, is suspected to have released lead-contaminated wastewater to the ground. The locations of lead-bearing material accumulation throughout the facility has changed considerably over the years. Miscellaneous piles of material are referred to in many of the inspections reviewed during the PA, however, the location and volumes of the alleged piles could not be determined. ISBH and IDEM have documented visual observations of potentially contaminated soils during numerous inspections. These inspections and related sampling excursions are presented below.

On August 28, 1984, ISBH conducted a RCRA inspection of the ACE facility. ISBH collected an undetermined number of samples during the inspection. According to the inspection report, a pile of lead and crushed cases was sampled, and the soil adjacent to the pile was also sampled (ISBH 1984a). ACE could not provide the actual sampling results; nor were they found by PRC during the file reviews. ISBH reportedly visited the facility again on October 1, 1984. A summary of that visit indicates that scoop samples of surface dust collected along Bluff Road showed 6.5 parts per million (ppm) extraction procedure (EP) toxicity lead and that surface contamination had resulted from runoff over the entire facility and along Bluff Road (ISBH 1984b). From the files reviewed during the PA/VSI, PRC could not verify the date or location of samples collected. Also, the actual sample results were not found in the files or were they provided by ACE.

On March 1, 1985, ISBH conducted a RCRA inspection and observed visually discolored (reddish) soil at the south side of the building. ISBH believed the discolored soil to be contaminated by lead from runoff (ISBH 1985a). No evidence other than visually discolored soil was noted to substantiate ISBH's observations. On August 22, 1985, ISBH indicated that samples were collected from two areas at the facility. One sample was collected from soils near the industrial battery storage area on the north side of the acid building. Another sample was collected from the pile of hard rubber cases stored between the acid building and the battery storage building (ISBH 1985c). The sample results and the exact sampling locations were not available for review during the PA/VSI.

ISBH conducted an enforcement inspection of the facility on March 10, 1986. The inspection included collecting surface soil samples from residences along Meridian Street just northeast of the facility. ISBH determined that the sampling results were suitable for enforcement action (ISBH 1985d). Background surface soil samples were also collected from the Holy Cross Cemetery off Meridian Street (ISBH 1986a). The sampling locations, number of samples, and analytical results associated with this sampling event were not provided to PRC during the PA/VSI. ACE representatives indicated (from memory) that the residential soil samples showed 500 to 700 ppm lead. Also, ACE representatives indicated that the cemetery samples showed 25 to 50 ppm lead (Harrison & Moberly 1994b, PRC 1994b).

2.5 REGULATORY HISTORY

ACE originally filed a Part A permit application in 1980 to obtain interim status for treatment of wastewater in a tank (ACE 1980b). ACE applied for the withdrawal of its Part A permit application in 1982 based on the wastewater treatment unit exemption per 40 CFR 265.1 (c)(10). EPA concurred with ACE and granted a withdrawal of the permit application. ACE applied for reinstatement of its interim status in 1985 based on new regulations regarding wastewater treatment. Interim status was reinstated for treatment of wastewater in a tank located at the Wastewater Treatment System (SWMU 5). Since that time, the State of Indiana has conducted numerous facility inspections based on the belief that ACE qualifies as a treatment, storage, or disposal (TSD) facility and is therefore subject to RCRA. ACE has consistently claimed exclusion from RCRA based on its interpretation of the lead-acid battery recycling exemption. Though it is currently under two separate administrative orders to comply with state and federal hazardous waste regulations, ACE is seeking a variance from

classifying, as solid waste, the materials it currently receives and processes. According to ACE, it's operations are subject to regulation by 40 CFR 266 Subpart G and are further excluded from the TSD facility operational and permitting requirements by 40 CFR 266.80 (a).

On December 4, 1975, the ISBH conducted an inspection of the ACE facility with reference to wastewater disposal practices. The inspection revealed that battery acid and cooling water were placed in a large fiberglass holding tank and discharged through a crushed layer of limestone to a ground absorption system. An analysis of this wastewater showed a lead concentration of 134 mg/L. ISBH determined that this method of discharge was a potential threat to the quality of groundwater in the area and requested ACE to investigate proper methods of disposing of this wastewater (ISBH 1976). No records were found during the PA/VSI relating to further action by ISBH on this issue. ACE representatives indicated that ILWD Inc. of Indianapolis was contracted to dispose of the spent electrolyte, but no estimated volumes or dates were provided.

ACE submitted a Notification of Hazardous Waste Activity form to EPA on August 18, 1980 (ACE 1980a). The notification classified ACE as a generator; a transporter; and a TSD facility. The facility submitted a RCRA Part A permit application on November 13, 1980 (ACE 1980b). This application lists a T01 process code and a capacity of: 13,500 gallons. Also listed are waste codes: D002, D004, D006, and D008 as well as a combined estimated annual waste generation rate of 6,500 tons. The T01 process code refers to the spent sulfuric acid storage tank located at the Wastewater Treatment System (SWMU 5).

On March 18, 1982, the Part A permit application and supporting information were submitted to ISBH (EECI 1982). The supporting information consisted of a waste analysis plan, closure plan, and contingency plan.

ACE requested withdrawal of its Part A permit application on July 26, 1982, based on the exemption for elementary neutralization under 40 CFR 265.1(c)10 (ACE 1982). In October 1982, EPA acknowledged ACE's request by determining that the definition of a wastewater treatment unit was met and that ACE did not require a hazardous waste permit. However, EPA advised ACE that it must comply with all applicable state and local requirements and that the facility would retain EPA Identification No. IND 016 389 546 because ACE originally filed as a generator (EPA 1982).

On August 28, 1984, ISBH conducted a RCRA inspection of the ACE facility in support of the EPA exemption granted under 40 CFR 265.1(c)10. ISBH cited ACE for noncompliance for storing wastes in two piles. These wastes were identified as lead and crushed cases. One pile was located inside the process building, and one was located outdoors. ISBH collected samples from one of the piles and from adjacent soils. ISBH also noted that surface contamination had resulted from runoff over the entire facility and along Bluff Road, however, no basis for this observation was provided in the inspection summary. ISBH concluded that the waste in piles was hazardous by characteristic but was intended for recycling; therefore, the waste was not covered by RCRA. However, ISBH stated its intent to request a cleanup plan to prevent recurrence of contamination (ISBH 1984a). The quantities and exact locations of the wastes sampled are not specified in the ISBH inspection summary. Apparently, no justification is provided for the claim of surface runoff contamination of on-site and off-site soils.

ISBH returned to the facility on October 1, 1984, in response to ACE's claim of storing up to 70 tons of crushed hard rubber cases at the warehouse at 1960 S. Meridian Street. About 50 tons was being stored on the concrete inside the warehouse and 10 to 20 tons was being stored in the breezeway between the two warehouse buildings.

ISBH reported the results for the waste pile samples collected during the inspection of August 28, 1984. ISBH deemed the material sampled to be EP-toxic for lead (21 ppm in leachate). ISBH also reported that scoop samples of dust (date of collection unknown) collected along Bluff Road showed 6.5 ppm of lead in leachate. ISBH recommended the following actions: placement of the facility on the emergency response list; conducting an epidemiological study; referral to Occupational Safety and Health Administration (OSHA); preventing ACE from cementing over any contaminated area; and issuance of a consent order (ISBH 1984b). According to ACE representatives during the VSI, the material identified as hazardous at 21 ppm lead was from the Lead Group Pile (SWMU 3) located within the ACE process building; this pile was composed of lead plates extracted from batteries and was awaiting off-site transport to the smelter (Harrison & Moberly 1985b). The piles of crushed hard rubber cases stored in the warehouse at 1960 S. Meridian were not sampled by ISBH. Also, the ISBH inspection report gives no information about the dust samples collected along Bluff Road.

On March 1, 1985, ISBH conducted a RCRA inspection at the facility. ISBH noted discolored (reddish) soil at the south side of the facility building. ISBH believed the soils to be contaminated by lead from runoff (ISBH 1985a). No evidence other than discolored soil was reported to substantiate ISBH's opinion. During a follow-up to this inspection, ISBH noted that hard rubber cases were being stored on a small concrete pad outside the main process building, and inside and outside the warehouse at 1960 S. Meridian. ACE was reportedly metering this material into lead shipments to the smelter. Plastic cases were being shipped off site to M.A. Industries in Peachtree, Georgia (ISBH 1985b).

In another follow-up inspection on August 22, 1985, ISBH collected samples from two areas at the facility. One sample was collected from soils near the industrial battery storage area on the north side of the acid building. Another sample was collected from the hard rubber cases stored between the acid building and the battery storage building (ISBH 1985c). The exact sampling locations are uncertain because the descriptions given do not clearly relate to the structures and SWMUs identified during the PA/VSI. ACE representatives were unable to verify locations. Also, no sample analytical results were found during the PA/VSI.

On October 4, 1985, ISBH submitted the results from its inspections and sampling events to ACE and advised ACE that an Administrative Complaint, Notice of Opportunity for Hearing, and Proposed Final Order Cause No. N-278) was forthcoming (ISBH 1985e). Cause No. N-278 (the order) was approved by the Indiana Environmental Management Board (IEMB) on October 15, 1985. The order declared ACE to be in violation for storage of hard rubber hazardous waste (D008) in piles without submitting a hazardous waste permit application. The order specified a compliance schedule for submittal of the permit application and closure plans, implement closure, and payment of civil a penalty (IEMB 1985).

ACE submitted a Part A permit application on November 6, 1985, in an effort to reinstate its interim status. However, the permit application fails to specify the process code for storage of hazardous waste in piles. The process codes and hazardous waste volumes specified are identical to those originally listed filed in the 1980 permit application (Harrison & Moberly 1985a).

On November 8, 1985, Harrison & Moberly, attorneys for ACE, filed objections to imposition of the order. ACE substantially denied the findings of the order and claimed an objection to filing a Part A permit application for the temporary storage of hard rubber battery cases based on the belief that the cases did not constitute a solid or hazardous waste. Ace further contended that the material was being recycled at a rate of more than 75 percent annually (Harrison & Moberly 1985b). No record of a response from ISBH was found during the PA/VSI. A settlement conference for the order was reportedly held on February 21, 1986 and was attended by representatives from IDEM, ACE, Harrison & Moberly, and ACE's consultant and moderator, Indiana Center for Advanced Research, Inc., (IDEM 1988b). However, no information regarding the outcome of that conference was found during the PA/VSI.

ISBH conducted an enforcement inspection of the facility on March 10, 1986. The inspection included collecting surface soil samples from residences along Meridian Street just northeast of the facility. Background surface soil samples were also collected from the Holy Cross Cemetery off Meridian Street (ISBH 1986a). The sampling locations, number of samples, and analytical results associated with this sampling event were not available for review during the PA/VSI. ACE representatives indicated (from memory) that the residential samples showed 500 to 700 ppm lead, and believes that the cemetery samples showed 25 to 50 ppm lead (PRC 1994). No records were found that implied a connection between ACE operations and the lead levels found in the residential samples.

In November 1987, ACE contracted Belasco Drilling to drill four soil borings along Bluff Road just south of the facility (AOC 1). Soil samples were collected to a depth of 4 feet in each boring. Samples from the top 24 inches and from the bottom 24 inches in each boring and submitted for analysis of total lead by EP toxicity extraction. Lead concentrations in the top-24-inch samples ranged from 7,100 to 10,000 ppm. Lead concentrations in the bottom-24-inch samples ranged from 97 to 818 ppm (OALR 1987a, 1987b).

ACE submitted its solid waste biennial report for 1987 to IDEM on February 26, 1988. The document reported ACE to be neither a generator nor a TSD facility of hazardous waste (Harrison & Moberly 1988a).

On April 8, 1988, IDEM conducted a routine interim status inspection of the facility. IDEM cited a number of violations with respect to interim status requirements. Specifically, IDEM found that ACE maintained an inadequate Part A permit application concerning storage of hazardous waste in piles. IDEM observed a small pile of hard rubber stored in the warehouse at 1960 S. Meridian. IDEM recommended that these new violations be addressed in the existing enforcement action (IDEM 1988a). The inspection report does not specify the exact locations, volumes, or materials of the observed waste piles. ACE representatives stated during the VSI that IDEM was referring to the Lead Group Pile (SWMU 3).

On July 1, 1988, IDEM requested that ACE submit a RCRA Part B permit application. IDEM requested this submittal because its past inspections indicated that ACE stored hazardous waste in piles. IDEM further explained its authority (beginning on January 31, 1986) as a fully authorized implementation agency for the RCRA program (IDEM 1988b). In responding to ACE's request for clarification of a submittal due date, IDEM specified a due date of January 4, 1989, for submittal of the Part B permit application (IDEM 1988c).

On October 31, 1988, ACE attorneys Harrison & Moberly filed a verified petition to reaffirm status instead of the Part B permit application. The petition specifically requested that ACE be granted status as a generator only and that it no longer be designated as a TSD facility. This petition was based on the exclusion for battery reclaimers and accumulation times specified under 40 CFR 266.80 and 40 CFR 262.34 respectively (Harrison & Moberly 1988c).

On December 21, 1988, IDEM issued a second notice requesting ACE to submit a Part B permit application. IDEM explained why ACE's units and operations did not qualify for the regulatory exclusions. Fundamentally, IDEM contended that ACE stored spent batteries before they were reclaimed and was therefore subject to the requirements of 329 Indiana Administrative Code (IAC) 3-57-17 (40 CFR 266.80 (b)) (IDEM 1988d).

IDEM conducted an inspection of the facility on July 24, 1989. The inspection report notes that the outstanding enforcement action (Cause N-278) was unresolved and that, as a result, the inspection did not focus on areas subject to enforcement action. The report notes several violations relating to container labeling, aisle space, manifests, and operating records (IDEM 1989a).

On July 26, 1989, IDEM filed an agreed order, Cause H-106, based on violations observed during inspections on September 29, 1988, and April 13, 1989. Cause H-106 called for ACE to submit closure plans associated with container, tank, and waste pile storage of hazardous waste. Other requirements of the order included demonstrating financial assurance, payment of a $28,500 civil penalty, and implementing closure upon plan approval (IDEM 1989b). The agreed order did not provide the locations or descriptions of the container, tank, and waste pile recommended for closure; therefore, it is not known what SWMUs these referred to.

IDEM and ACE held an informal settlement conference on September 28, 1989. The conference focused on two former piles of hard rubber; one located just outside the process building (SWMU 12) and the other located outside the warehouse at 1960 S. Meridian (SWMU 13). The parties agreed that these piles were hazardous waste piles and that each should be brought to closure regardless of whether it was covered under RCRA or state law. IDEM agreed to a reduced civil penalty of $10,000. The parties also discussed whether the Lead Group Pile (SWMU 3) is considered a hazardous waste pile (ICAR 1989b); no determination was made during the conference.

On November 30, 1989, Harrison & Moberly, requested on behalf of ACE that IDEM delay issuing a complaint in Cause H-106. The request was based on a pending case involving RSR Quemetco Co. (RSR). The case involved a determination of whether lead plates, slugs, and oxides constitute a product destined for recycling or a hazardous waste (Harrison & Moberly 1989).

IDEM notified ACE on January 19, 1990 of the adoption of an agreed order, Cause N-278, and a request for payment of the civil penalty associated with the order (IDEM 1990a).

On January 24, 1990, IDEM acknowledged receipt of an ACE closure plan filed in response to Cause N-278 for SWMU 12 and SWMU 13. IDEM issued a list of deficiencies in the plan regarding closure of the waste pile areas defined in Cause N-278 (IDEM 1990b).

In February 1990, ACE and its consultant, Indianapolis Center for Advanced Research, Inc. (ICAR), submitted a cleanup equivalency plan instead of closure for the two waste pile storage areas defined in Cause N-278. The cleanup equivalency plan called for thoroughly washing the concrete and resurfacing using water-impermeable epoxy (ICAR 1990). The cleanup equivalency plan and

payment of a $10,823.00 civil penalty were submitted to IDEM on February 21, 1990 (Harrison & Moberly 1990a).

On September 28, 1990, IDEM conducted a RCRA inspection of the ACE facility. The inspection report cites violations relating to the adequacy of the Part A permit application for container and waste pile storage, labeling, aisle space, operating records, and waste determination. These and other violations were documented as repeat violations based on previous inspections. The report states that all violations would be referred to the enforcement section and incorporated into the resolution of Cause H-106 (IDEM 1990c, 1991a).

A PA was performed for the ACE facility in March 1991 by the IDEM Office of Environmental Response and Site Investigation Section. The PA concluded that the facility merited no further remedial action planned (NFRAP) status but should be addressed under a state cleanup program. On March 21, 1991, IDEM reported the PA results to EPA and explained that there were problems with classifying the facility. IDEM was pursuing legal means to classify the facility as a TSD, thereby rendering the facility exempt under CERCLA (IDEM 1991b). No response from EPA regarding the results of the PA was found during the PA/VSI file review.

On September 20, 1991, IDEM conducted a RCRA Land Disposal Restrictions (LDR) inspection. The inspection summary notes that ACE did not manifest or include LDR notifications with D008 lead shipments to off-site secondary lead smelters (IDEM 1991c).

On May 4, 1992, IDEM notified ACE of its noncompliance with the agreed order, Cause N-278 and a Commissioner's Order, Cause H-106. IDEM stated that Cause H-106 became effective on March 29, 1990, and that the petition filed by ACE's attorneys was not in compliance with the order. Also, IDEM stated that Cause N-278 became effective in January 1990 for closure of the two waste piles. ACE's response to the notice of deficiency issued by IDEM was considered invalid. IDEM stated that if ACE did not document compliance with the two orders, these matters would be referred to the Office of Attorney General. IDEM further stated that regardless of ACE's compliance status, it had to respond to the requirements of the orders by May 19, 1992 (IDEM 1992a).

On June 8, 1992, ACE's attorneys, Harrison & Moberly, responded to the May 4, 1992 letter from IDEM. The response argues that closure of the two waste piles defined in Cause N-278 was never agreed to and that the cleanup equivalency plan proposed by ACE never received a response from IDEM. It was ACE's understanding that payment of the $10,823.00 civil penalty and implementation of the proposed cleanup equivalency plan would resolve Cause N-278 and preclude any further enforcement actions. It was also ACE's understanding that IDEM would take no further action until a verdict was rendered in the RSR case. It was also ACE's understanding that if the judge ruled in favor of RSR, then IDEM would accept that decision and seek no further action against ACE. The decision in the case was in favor of RSR and the judge determined that battery parts were not subject to hazardous waste regulation. IDEM, however, proceeded with issuing Cause H-106 despite the apparent agreement with ACE. ACE maintained its position that the facility was not subject to RCRA according to 40 CFR 266 Subpart G (Harrison & Moberly 1992).

On June 30, 1992, IDEM conducted a RCRA inspection of the facility (IDEM 1992b). No record of violations cited during the inspection was found during the PA/VSI.

IDEM conducted another inspection on June 15, 1993, to determine the facility's compliance with the IAC, Environmental Management Act, and Hazardous Waste Management Permit Program. All violations found during this inspection were repeat violations pertaining to the requirements for hazardous waste generators and TSD facilities under 40 CFR 262, 265, and 268 (IDEM 1993).

On September 30, 1993, ACE attorneys Harrison & Moberly filed a request for variance from classifying stored lead-bearing materials as solid waste. The request for variance presents a detailed description of ACE operations relating to materials processed and transported for off-site recycling (Harrison & Moberly 1993). To date, IDEM has not responded to the request for variance.

The facility is currently authorized under Industrial Discharge Permit 334102 to discharge treated wastewater to the Indianapolis municipal sewer system. There have been no documented violations of this permit. ACE currently operates under no other permit.

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and groundwater in the vicinity of the facility.

2.6.1 Climate

The climate in Marion County is classified as continental humid. The county is on the fringe of the climatic influence associated with the Great Lakes. The average daily temperature is 52 °F. The lowest average daily temperature is 20 °F in January. The highest average daily temperature is 85 °F in July.

The total annual precipitation for the county averages 38.7 inches (USDA 1978). The mean annual lake evaporation for the area is about 33 inches (USDC 1979). The 1-year, 24-hour maximum rainfall is about 2.5 inches (USDC 1963).

The prevailing wind in the county is from the southwest. Average wind speed is highest in winter and early spring at 11 miles per hour (USDA 1978).

The average annual snowfall in the county is 20 inches. The average relative humidity at noon ranges from 58 percent in summer to 68 percent in winter. The humidity increases to 90 percent or more on most nights (USDA 1978).

2.6.2 Flood Plain and Surface Water

The ACE facility lies within "Zone C" and is designated as an area of minimal flooding (FEMA 1988). Surface water runoff at the facility is controlled by a concrete-reinforced dike that extends along the north, west, and south sides of the facility. All storm water that falls on the property is directed to the lowest (west) portion of the diked area and is pumped through a Collection Sump (SWMU 4) to the Wastewater Treatment System (SWMU 5) before discharge to the city sewer. The nearest surface water body, the White River, is located about 2,500 feet due west of the facility. White River flows from north to south and is used for industrial and municipal water supply

purposes. The nearest sensitive environment is located 1,000 feet northwest of the facility along the east edge of the White River. This sensitive environment is classified as Palustrine, temporarily flooded, diked and impounded, and forested with broad-leaved deciduous foliage (DOI 1990).

2.6.3 Geology and Soils

The geology and soils of the region are the result of the last major glaciation of central Indiana (Harrison 1963). The soils generally consist of till units with occasional sand and gravel beds between these units (IDNR 1980). The glacial drift is believed to be composed of three drift sheets that resulted from the Kansan, Illinoisan, and Wisconsinan glaciations. Beneath the facility, the thickness of these unconsolidated deposits is about 100 feet. Surficial geology in the area consists of alluvial sand, silt, and clay generally underlain by outwash sand and gravel (Harrison 1963). The valley of Fall Creek is rimmed with this outwash sand and gravel, which were formed during the melting of the Wisconsinan glacier. Generally, the geology below the surface is complex and consists of the Cartersburg and Center Grove Till Members separated by thin lenses of sand, gravel, or silt. Older tills further below the surface interfinger with the sand and gravel along the lower-lying terrace areas associated with major streams. The outwash is highly permeable (IDNR 1980).

The depth below ground surface (bgs) of bedrock in the area is about 110 feet (Harrison 1963). The bedrock formations beneath the glacial drift consist of limestones and dolomites of Silurian and Devonian age. These dip gradually to the southwest at a rate of 20 to 30 feet per mile. The only fault present in the formations is the Fortville Fault in eastern Marion County (Herring 1976). The limestone and dolomite formations constitute the most productive bedrock aquifer in Marion County (IDNR 1980).

The facility is underlain by glacial drift that is part of the Tipton Till Plain physiographic unit. This unit is characterized by topography related to Wisconsinan glacial advances. The glacial drift beneath the facility is about 110 feet thick. The materials are primarily stratified sands and gravels associated with glacial alluvial outwash channels and glacial till layers. Black fissile (New Albany) shale about 100 feet in thickness lies below the glacial drift. Beneath the shale is 150 to 200 feet of limestone and dolomite of Silurian and Devonian age.

The soil survey for Marion County does not classify the surficial soils in the area surrounding the facility because of historical disturbances for construction and other purposes. Generalized mapping indicates the original surficial soils to be of the Genessee-Sloan Association. These are deep, well drained to very poorly drained, nearly level soils formed in loamy alluvium.

Beneath the surficial soils is a thick layer of alluvial material ranging, from fine sand to large gravel. The shallow aquifer is located in this sand and gravel zone. A layer of sandy, clayey silt has been encountered at depths ranging from 48.5 to 53.5 feet bgs.

No sinkholes or collapse features related to karst development have been reported in Marion County. The closest known fault is the Fortville, Fault about 2.5 miles east of the facility.

2.6.4 Groundwater

Two aquifers are present in the region around the ACE facility. The principal Pleistocene aquifer is an extensive aquifer system associated with the sand and gravel deposits of the White River valley. This aquifer extends into the glacial till cover east and west of the valley. The thickness of the saturated sand and gravel deposits is about 60 feet. The piezometric surface of this aquifer is about 690 feet above mean sea level near the facility, and the estimated transmissivity is 150 gallons per day per foot (gpd/ft). The elevation of the facility is 710 feet above mean sea level. The regional flow of this aquifer is to the southwest. This aquifer discharges to the White River valley. The water production capability of this aquifer is more than 500 gallons per minute (gpm) in the vicinity of the facility. This aquifer is used for industrial, domestic, and commercial purposes (Herring 1976). Logs for wells in areas adjacent to the facility indicate that groundwater is encountered from 10 to 20 feet bgs.

The second aquifer in the area is the Silurian-Devonian aquifer, which is associated with the limestone and dolomite bedrock formations. This aquifer is hydraulically connected to the Pleistocene aquifer in the area of the facility. The piezometric surface of the Silurian-Devonian aquifer near the facility is about 690 feet above mean sea level. The saturated thickness of this aquifer is about 275 feet, and the estimated transmissivity is 10,000 gpd/ft. Groundwater in this aquifer flows to the southwest.

Well production of water from this aquifer ranges from 75 to 250 gpm in the area. This aquifer is primarily used for industrial, domestic, and commercial purposes (Herring 1976).

The facility is located above a major unconfined sand and gravel aquifer. The aquifer generally occurs within the glacial melt water and outwash deposits encountered along the White River, Fall Creek, and Eagle Creek. Groundwater occurs within this outwash aquifer at a depth of about 20 feet beneath the facility, and the aquifer extends to a depth of about 115 feet bgs. Beneath the aquifer, the relatively impermeable New Albany Shale is encountered. In the vicinity of the facility, a clay layer separates an upper aquifer from a lower aquifer.

Groundwater is used as an industrial and private water supply in the vicinity. During the PA, 129 wells were identified within 3 miles of the facility. The purpose of these wells could not be determined from the information available from the State of Indiana. ACE representatives interviewed during the VSI indicated that some industrial supply wells are in use in the area but could not specify their locations. The ACE representatives also indicated that private wells are no longer in use in the area and that all drinking water is supplied by the City of Indianapolis. The nearest water well is located within 0.5 mile south of the facility; it is not known whether this well is presently in use.

2.7 RECEPTORS

The facility occupies 0.75 acre in a mixed-use area in Indianapolis, Indiana. Indianapolis has a population of about 700,000.

The facility is bordered on the north, west, and south by SWI, and on the east by Bluff Road. Directly across Bluff Road from ACE's main facility is a warehouse bearing the address of 1960 S. Meridian Street. ACE leases the warehouse from TKT leasing and is in the process of purchasing it. East and south of the warehouse are mixed-use residential and industrial areas. The nearest occupied residences are located about 1,000 feet from the facility to the north-northeast, east, and east-southeast.

ACE operations are conducted from 8:00 a.m. to 4:00 p.m., 5 days each week. Facility access is controlled by a six-foot high chain-link fence that surrounds the property. A double-sided gate permits access to the loading and unloading areas in the south portion of the facility. In addition to the chain-link fence, a sheet-metal fence measuring 12 to 14 feet high is present on the south, west, and north sides of the property. No guards or monitoring devices are used to prevent access during nonoperating hours.

The nearest surface water body, the White River, is located about 0.5 mile due west of the facility. White River flows from north to south and is used for industrial and municipal water supply purposes. The nearest surface water intake on this river is located about 5 miles southwest and downstream of the facility. Pleasant Run Creek is located about 1 mile south of the facility. This creek flows from east to west into the White River. Further to the south but less than 2 miles from the facility is Highland Creek, which flows from east to west into the White River.

Groundwater is used as an industrial and private water supply in the vicinity. During the PA, 129 wells were identified within 3 miles of the facility. The purpose of these wells could not be determined from the information available from the State of Indiana. Also, the groundwater flow direction could not be established because of lack of water level data for the area. Only one occurrence of well sampling near the facility was found during the PA. ISBH sampled a private well in 1984 about three blocks south of the facility. The sample results showed no detection of lead and this shallow well was reportedly abandoned in 1985 in favor of a public water supply. ACE representatives interviewed during the VSI indicated that some industrial supply wells are in use in the area but could not specify their locations. ACE representatives also indicated that private wells are no longer in use in the area and that all drinking water is supplied by the City of Indianapolis. The nearest water well is located less than 0.5 mile south of the facility; it is not known whether this well is presently in use.

The nearest sensitive environment, a 7-acre wetland area, is located 1,000 feet northwest of the facility along the east edge of the White River. This sensitive environment is classified as Palustrine, temporarily flooded, diked and impounded, and forested with broad-leaved deciduous foliage (DOI 1990).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the 15 SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figure 2 shows the SWMU locations.

SWMU 1 **Unloading Dock**

Unit Description: The Unloading Dock is located along the east side of the main facility and has access to Bluff Road. The dock is made of concrete and is "L"-shaped. It is about 5 feet high and 10 feet wide. One leg measures about 40 feet, and the other leg measures about 70 feet. The unit is fully covered by the main building roof. As batteries are received at the dock, they are stacked on pallets and transferred inside the building to an adjacent staging area, where they await processing. The staging area occupies about 2,660 square feet and contains no floor drains. In the staging area, the pallets of batteries are wrapped in shrink-wrap plastic for containment. Smaller and miscellaneous batteries are collected in plastic, steel, and cardboard drums in this area. Large industrial batteries are placed on pallets and staged separately from the other batteries.

Date of Startup: This unit began operation in 1967. This date is estimated because ACE representatives were unable to verify facility operations before 1967.

Date of Closure: This unit is currently active. No future closure is expected for this unit.

Wastes Managed: The unit manages all batteries received by ACE. These include large industrial, automotive, small golf cart and motorcycle, marine,

telephone standby, light tool, railroad, heavy equipment, lighting, power generation, airplane, military, and lawnmower batteries. The batteries are transported by ACE to its facility, where they are processed to recover recyclable materials. The recyclable materials are transported by ACE to its customers for further recycling. The batteries contain materials bearing hazardous characteristics. The batteries are referred to as recyclable materials and consist of the following: dilute sulfuric acid (spent electrolyte) (D002, D004, D006, and D008), polypropylene battery casings (D004, D006, and D008), lead plates, sludges, and oxides (D004, D006, and D008), and unbroken, hard rubber (ebonite) batteries (D002, D004, D006, and D008). Excluding the hard rubber batteries, which are merely repackaged for resale to an unspecified buyer, the other recyclable materials are contained inside the battery casings until the casings are opened and separated from the lead plates at the Saw Room and Tumbler (SWMU 2).

Release Controls:

There are no release controls at the dock or staging area. These areas are concrete-floored with no floor drains present. Any release would be contained by the concrete floor of the process building or would be allowed to drain by gravity to the nearest collection sump which is located adjacent to the saw assembly at SWMU 2.

History of Documented Releases:

No releases from this unit have been documented.

Observations:

PRC observed batteries being unloaded during the VSI. The staging area contained about 6 pallets of automobile and miscellaneous batteries and about 17 pallets of large industrial batteries. The concrete floor showed no signs of structural cracking, and all batteries were contained on pallets or in drums. The VSI was conducted during rainy weather, and several areas of the building roof were

leaking. The rainwater was observed draining out of the staging area to the collection sump located in the Saw Room (SWMU 2). Photographs No. 1 and 2 show the various batteries stored in the staging area.

SWMU 2 **Saw Room and Tumbler**

Unit Description:

The Saw Room and Tumbler provide the first stage of battery breaking and separation of recyclable materials. This unit is located just inside the building near the Unloading Dock (SWMU 1) and adjacent to and south of the staging area. Batteries are received in the Saw Room from the adjacent staging area or directly from the Unloading Dock through a removable panel in the building wall. SWMU 2 is essentially an in-line system and includes a slow-speed saw assembly , a conveyor system, and a tumbler. The saw assembly consists of a circular, carbon-tipped saw blade fixed atop a primary steel conveyor used to carry the batteries to the saw. The saw assembly is constructed on a metal framework about 7 feet above the facility floor. A secondary conveyor is positioned to the side of the saw blade to catch the battery tops and electrolyte as the batteries are opened. The electrolyte drains below to a trough and collection sump, while the tops are conveyed past the Tumbler. The primary and secondary conveyors run in parallel to the Tumbler. The Tumbler is a horizontal steel cylinder measuring about 7 feet in diameter and 20 feet in length. It rotates about an axle and is used to separate lead plates from plastic casings. The lead plates drop out into the underlying Lead Group Pile (SWMU 3). The casings exit the Tumbler and join the battery tops on the secondary conveyor; both are then conveyed to the MA Separator (SWMU 6).

The Saw Room contains one collection sump and two troughs (SWMU 4) used to contain the electrolyte that drains from the saw assembly.

	The collection sump is located about 10 feet from the saw assembly. The troughs are perpendicular to each other. One serves to collect drippage from beneath the saw assembly; the other runs parallel to the Tumbler and empties into the main sump at the Wastewater Treatment System (SWMU 5).
Date of Startup:	This unit began operation in the mid-1970s. This date is estimated based on information gathered from ACE during the VSI. Before the mid-1970s, ACE reportedly operated a high-speed saw but no tumbler in this area.
Date of Closure:	This unit is currently active, and no closure is planned.
Wastes Managed:	The Saw Room and Tumbler receive spent lead-acid automobile batteries. These batteries contain materials bearing hazardous characteristics. These materials are referred to as recyclable materials and consist of the following: dilute sulfuric acid (spent electrolyte) (D002, D004, D006, and D008), polypropylene battery casings (D004, D006, and D008), and lead plates, slugs, and oxides (D004, D006, and D008).
Release Controls:	One collection sump and two troughs (SWMU 4) serve to collect spent electrolyte from SWMU 2. The troughs are built into the concrete floor and are lined with stainless steel to prevent corrosion of the concrete. No other release controls exist at the unit.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit was not operating during the VSI because of frozen wash water in the MA Separator (SWMU 6). Broken battery pieces were scattered over much of the metal framework and on the underlying

floor. The concrete floor was free of visible cracks and was wet from roof leakage. Areas of the concrete floor showed signs of etching caused by spilled electrolyte. ACE representatives commented that the floor in this area had been resurfaced several times. Etching removes about 3 inches of the concrete every 2 years. ACE reported the concrete to be 8 inches thick in this area and throughout the process building. PRC noted no evidence of release at this unit. Photographs No. 3 and 4 show the primary conveyor and the saw assembly with secondary conveyor respectively.

SWMU 3 **Lead Group Pile**

Unit Description: The lead plates drop out of the tumbler located at SWMU 2 into the underlying Lead Group Pile, which is a three-sided concrete bay measuring about 35 feet long and 15 feet wide. Its concrete walls are about 6.5 feet high and 12 inches thick. The volume of material contained in the group pile could not be accurately determined during the VSI; however, the area appeared to be about one-quarter full.

Date of Startup: This unit began operation in the mid-1970s. This date is estimated based on information gathered from ACE during the VSI. According to ACE representatives, the lead groups were accumulated at numerous locations throughout the facility before SWMU 3 began operation.

Date of Closure: This unit is currently active, and no closure is planned.

Wastes Managed: The Lead Group Pile receives recovered lead plates from SWMU 2, wastewater treatment sludge from SWMU 5, and lead slugs and sediment from the MA Separator (SWMU 6). These materials contain constituents bearing hazardous characteristics. These are referred to as recyclable materials and consist of the following: lead plates, slugs,

and oxides (D004, D006, and D008) and wastewater treatment sludge (D004, D006, and D008).

Release Controls: The unit has three concrete walls that serve as release controls. One side is open to the process building for transport of the material. Any materials released from the unit would be contained on the concrete floor of the process building. There are no sumps nearby, however, one of the collection troughs (SWMU 4) runs parallel to the length of the unit and about three feet away.

History of Documented Releases: No releases from this unit have been documented.

Observations: This unit was not operating during the VSI because of frozen wash water in the MA Separator (SWMU 6). The unit did contain an undetermined amount of lead plates and appeared to be about one-quarter full. The concrete floor was free of visible cracks and was wet from roof leakage. ACE reported the concrete to be 8 inches thick in this area and throughout the process building. PRC noted no evidence of release at this unit. Photograph No. 5 shows the lead plates as they are discharged from the tumbler at SWMU 2.

SWMU 4 **Collection Sumps and Troughs**

Unit Description: There are five concrete-lined collection sumps at the ACE facility. Two are located inside the process building, and three are located outdoors and south of the process building. Four of the sumps are connected by a trough system used to direct spillage. One sump located at the south edge of the property is connected to an aboveground, 1-inch-diameter polyvinyl chloride (PVC) pipe. This sump primarily collects storm water runoff throughout the facility; this water is pumped directly to the Wastewater Treatment System

(SWMU 5). All the troughs contain PVC pipes through which sump fluids are pumped to the Wastewater Treatment System. Of the remaining four sumps, one is located near Saw Room and Tumbler (SWMU 2), one is located at MA Separator (SWMU 6), and two are located adjacent to Industrial Lead Storage Yard and Nonindustrial Lead Storage Yard (SWMUs 7 and 8). The sumps range in size from 2 to 3 square feet. Their depths range from 18 inches to about 7 feet. The deepest sump (7 feet) is located at SWMU 5 and receives all wastewater from across the facility.

Date of Startup: The two indoor sumps began operation in the late-1970s when the Wastewater Treatment System was installed. The outdoor sumps were installed between the mid-1970s and 1984 as the south portion of the facility was being concrete-paved. These dates are estimated based on data from the PA file and ACE representatives.

Date of Closure: The unit is active, and no closure is planned.

Wastes Managed: The sumps and troughs manage the following hazardous waste streams: spent electrolyte (D002, D004, D006, and D008) and untreated wastewater (D002, D004, D006, and D008).

Release Controls: No release controls exist for the unit other than the unit itself. All surface drainage across the facility is directed to this unit and is ultimately treated in SWMU 5.

History of Documented Releases: No releases from this unit have been documented.

Observations: All the sumps and troughs were either partially or fully filled with wastewater during the VSI. A complete visual inspection of their structural integrity was not possible. No evidence of release from this

unit was observed during the VSI. Photographs No. 6, 7, and 8 show two troughs located at SWMU 2 and storm water collection at the south facility boundary, respectively.

SWMU 5 **Wastewater Treatment System**

Unit Description: The Wastewater Treatment System is a totally enclosed treatment system and consisting of the following eight aboveground, steel tanks: one 12,000-gallon sulfuric acid primary storage tank; two 2,500-gallon supplemental acid storage tanks; two 300-gallon reactor tanks; two 5,000-gallon magnesium hydroxide storage tanks; and one 2,400-gallon clarifier tank. Wastewater is pumped from the main collection sump (SWMU 4) to the primary acid tank. This tank is supplemented by two 2,500-gallon tanks. The acid is pumped from the primary tank, into the first reactor tank, where initial mixing with $MgOH_2$ occurs. The mixture then enters the second reactor tank for further mixing. The mixture is then pumped to the clarifier tank where solids containing lead, arsenic, and cadmium are precipitated out. The clarified effluent is then neutralized and filtered before being discharged. The facility is currently authorized under Industrial Discharge Permit 334102 to discharge treated wastewater to Indianapolis municipal sewer system. The precipitated solids from the clarifier are drained off daily and transferred to the Lead Group Pile (SWMU 3) for accumulation prior to off-site transport. Wastewater treatment is a batch process and the average daily volume of treated wastewater is 2,400 gallons; the system capacity is 3,000 gallons. As of February 1994, the City of Indianapolis will conduct periodic testing of the wastewater discharged to the POTW. Previously ACE conducted all such testing and reportedly ACE never experienced an excursion. Sample results were obtained from January 1992 to January 1994, and no excursions were noted.

Date of Startup:	This unit began operation in the late-1970s. This date is estimated based on information gathered from ACE representatives during the VSI.
Date of Closure:	This unit is active, and no closure is planned.
Wastes Managed:	This unit receives the following hazardous waste streams: spent electrolyte (D002, D004, D006, and D008) and untreated wastewater (D002, D004, D006, and D008) from throughout the facility. Through chemical treatment of the wastewater, wastewater treatment sludge (D004, D006, and D008) is generated in the unit at a rate of about 200 pounds each day. This sludge contains hazardous constituents, but is referred to as a recyclable material under 40 CFR 261.6. After treatment of the wastewater, it is filtered and discharged under permit to the Indianapolis POTW. Spent filters are changed periodically and are combined with the treatment sludge in the lead group pile for off-site smelting.
Release Controls:	The unit is equipped with 5,000 gallons of supplemental capacity for storing spent electrolyte. The main collection sump is located within the tank area, so minor spills and leaks would be routed to the sump and pumped back into the system. There are no secondary containment structures in the area to contain a major release. Each acid storage tank is equipped with conductimetric probes that close alarm circuits if the tank is overfilled. ACE monitors the pH in the acid-alkali reaction tank during treatment. If the pH falls to or below 5 standard units (su), an alarm is triggered and the system is shut down until the problem is resolved (EECI 1982).
History of Documented Releases:	No releases from this unit have been documented.

Observations: The system was not in operation during the VSI because other units in the plant were not operating. There was no evidence of structural cracks in the concrete flooring beneath the tanks. Photograph No. 9 shows magnesium salts crusting around the ancillary piping and around holes in the walls of the primary magnesium storage tank.

SWMU 6 **MA Separator**

Unit Description: This unit is located in the southwest portion of the process building. It consists of a hammermill grinder and four auger bins. The battery casings and tops are conveyed overhead from the Tumbler (SWMU 2) and are dropped into a metal hopper situated above the grinder. After grinding, the material drops into the first of a series of four metal bins designed to separate heavier materials from lighter materials. The solids settle out by gravity. Each auger bin contains fresh water and has a capacity of about 300 gallons. As solids settle out in the lowest part of the bin, a metal auger carries the material upward at a slight angle and dispenses it out the other end into drums or plastic containers. Heavier and larger materials such as battery posts (slugs) and lead plate remnants drop out of the system first. These materials fall out in the first and second bins; lead-bearing sediment and oxides fall out in the third bin; and the washed plastic accumulates in the fourth bin. All lead-bearing materials are combined in the lead group pile Saw Room and Tumbler (SWMU 2) for off-site smelting. The plastic is dispensed directly from the auger bin into a metal hopper and is blown through an overhead conduit to a trailer at the Polypropylene Loading Area (SWMU 9). The MA Separator is underlain by concrete flooring and occupies about 1,000 square feet of the process building. There are no floor drains in the immediate area; however, all spillage falls to the concrete flooring and is directed by gravity flow to a wastewater trough (SWMU 4) that runs north and south along the building floor.

Date of Startup:	This unit began operation in 1967. This date is estimated based on information gathered from ACE representatives.
Date of Closure:	The unit is active, and no closure is planned.
Wastes Managed:	The unit manages the following solid wastes: polypropylene battery casings (D004, D006, and D008) and lead slugs and oxides (D004, D006, and D008). These wastes contain hazardous constituents but are considered recyclable materials under 40 CFR 261.6.
Release Controls:	This unit has no release controls. Any spills that may occur are contained by the concrete floor, gravity flow along the floor to the collection trough, and are ultimately treated at the Wastewater Treatment System (SWMU 5).
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The MA Separator was not in operation during the VSI because of frozen wash water in the auger bins. The concrete floor surrounding the unit was free of structural cracks. Broken battery fragments were scattered throughout the area. Photographs No. 10, 11, and 12 show the grinder assembly, first and second auger bins, and third and fourth auger bins, respectively.
SWMU 7	**Industrial Lead Storage Yard**
Unit Description:	This unit is located outside the main process building toward the southern portion of the facility. It is a concrete-lined, three-sided bay, occupying about 25 square feet. It has three retaining walls that are about 5 feet high and 12 inches thick. The unit is open on its east side and is covered by a sheet-metal roof. Large steel-cased industrial

batteries are transferred to this area from the staging area at the Unloading Dock (SWMU 1). These batteries are turned upside down to drain the electrolyte. The electrolyte flows to a collection sump located about 15 feet to the north. After the batteries have drained, they are taken to the south end of the process building adjacent to MA Separator (SWMU 6), where the steel casings are opened mechanically by a hydraulic chisel. ACE personnel refer to this tool as the "can opener." The individual cells are removed from the steel casings and sent to the Saw Room (SWMU 2), for processing. The steel casings are steam-cleaned outdoors and sold to local metal recyclers. All wash water from the steam-cleaning operation is directed to Wastewater Treatment System (SWMU 5), for treatment. Because of vendor requirements, the industrial batteries must be processed separately from the other batteries. The lead groups are periodically transferred from this unit to the Lead Loading Area (SWMU 10).

Date of Startup: The unit began operation in 1967.

Date of Closure: The unit is active, and no closure is planned.

Wastes Managed: The unit manages large industrial batteries that contain spent electrolyte (D002, D004, D006, and D008) and lead plates, slugs, and oxides (D004, D006, and D008). The spent electrolyte is hazardous by characteristic of corrosivity (D002) and may contain arsenic, cadmium, and lead. The lead plates, slugs, and oxides are considered hazardous by characteristic but are referred to as recyclable materials.

Release Controls: The three-sided concrete bay limits runoff from the lead storage pile and also prevents the air transport of contaminated dust. Also, the nearby collection sump provides containment for drained electrolyte.

History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, the unit contained about 12 large industrial batteries. The unit also contained about 500 cubic feet of recovered lead in a pile. No evidence of release was observed, and the concrete pad showed no signs of structural cracks. The area was wet from the recent rains, and runoff appeared to be contained by the nearby collection sump. Photographs No. 13 and 14 show SWMU 7 and the hydraulic can opener, respectively.
SWMU 8	**Nonindustrial Lead Storage Yard**
Unit Description:	This unit is an accumulation point for lead groups recovered from processing of automobile and light equipment batteries. It is identical in size and construction to the Industrial Lead Storage Yard (SWMU 7) and they share a common retaining wall. SWMU 8 is located between SWMU 7 and the southern edge of the process building. A collection sump (SWMU 4) is located about 10 feet east of SWMU 8's open side.
Date of Startup:	The unit began operation in 1967.
Date of Closure:	The unit is active, and no closure is planned.
Wastes Managed:	This unit receives materials from the Lead Group Pile (SWMU 3). Solid wastes managed at SWMU 7 include lead plates, slugs, and oxides (D004, D006, and D008) and wastewater treatment sludge (D004, D006, and D008). These wastes are hazardous by characteristic but are referred to as recyclable materials.

Release Controls:	The three-sided concrete bay prevents runoff from the pile and prevents the potential for air transport of contaminated dust. Also, the nearby collection sump provides containment for drained electrolyte.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit contained a small amount of lead-bearing sediment during the VSI. Also, about six pallets of automotive batteries were being stored in the south corner of the bay. Photograph No. 15 shows this unit.

SWMU 9 **Polypropylene Loading Area**

Unit Description:	This unit is located outside the southeast corner of the process building. It consists of a concrete-paved area measuring about 400 square feet. Washed polypropylene is transferred from the MA Separator (SWMU 6) through an overhead conduit into an ACE-operated transport trailer at SWMU 9.
Date of Startup:	This unit began operation in the mid-1970's. This date is estimated, as it is unknown whether polypropylene has always been loaded at this location. Operations and equipment locations may have changed periodically over time.
Date of Closure:	This unit is active and not planned for closure.
Wastes Managed:	This unit receives ground and washed polypropylene from SWMU 6. This is considered a recyclable material but may contain traces of constituents bearing the D004 (arsenic), D006 (cadmium), and D008 (lead) waste codes. Though this material is thoroughly washed and is

	sorted from recoverable lead, it may contain some residual toxic metal oxides. The polypropylene is transported off site for recycling.
Release Controls:	This unit is fully contained on concrete pavement. The polypropylene is mechanically blown into the transport trailer under the supervision of an operator. Any malfunction or uncontrolled release of the material would warrant shutting down the system immediately. The area surrounding the trailer is concrete-paved, and no floor drains or sumps are located nearby.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, the trailer was about one-third full of washed polypropylene. Some polypropylene fragments were observed on the ground surrounding the trailer, and the pavement was wet from the recent rains. No uncontrolled releases were observed at this unit. Photograph No. 16 shows the partially filled trailer at this unit.
SWMU 10	**Lead Loading Area**
Unit Description:	This unit is located just south of Nonindustrial Lead Storage Yard (SWMU 7) and contains a parked transport trailer for recovered lead. The capacity of the transport trailer was not available to the inspection team. The area surrounding the trailer is concrete-paved and measures about 400 square feet. All drainage is directed to the southernmost collection sump on the property.
Date of Startup:	This unit began operation in the mid-1970's. This date is estimated, as it is unknown whether lead has always been loaded at this location. Operations and equipment locations may have changed periodically over time.

Date of Closure:	The unit is active, and no closure is planned.
Wastes Managed:	The unit receives recyclable materials including recovered lead plates, slugs, and oxides (D004, D006, and D008) and wastewater treatment sludge (D004, D006, and D008). These materials are transported from the Industrial Lead Storage Yard (SWMU 7) or from the Nonindustrial Lead Storage Yard (SWMU 8) depending on the smelter requirements. These wastes are transported off site to lead smelters for secondary lead recovery.
Release Controls:	The area is located outdoors, and the surrounding area is concrete-paved. The trailer is covered with a tarp while on site to prevent any airborne transport of contaminated dust. A collection sump located about 50 feet south of this unit receives all runoff from the area.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The content of the trailer were not observed during the VSI because of the height of the trailer. ACE representatives indicated that normal operations generate three to four trailer loads of waste each day. No evidence of release was observed, nor were there any visible structural cracks in the concrete paving surrounding the unit. Photograph No. 17 shows the unit in relation to the south portion of the facility.
SWMU 11	**Warehouse (1960 S. Meridian)**
Unit Description:	ACE currently leases warehouse space from TKT. The warehouse is located at 1960 S. Meridian east of the main facility and across Bluff Road. The warehouse contains about 14,820 square feet of space and is concrete-floored throughout. The warehouse is divided in the middle by a breezeway and loading dock, which creates north and

south buildings. An inspection conducted by ISBH in October 1984 first revealed that ACE was storing processed hard rubber battery casings in the south warehouse. During the ISBH inspection, about 50 tons of the material was stored inside the warehouse. The 50 tons of material was reportedly stored in a pile on the concrete floor (ISBH 1984b). ACE reportedly had been metering in small amounts of the hard rubber with lead shipments to the smelter. In 1985, ACE began an operation to process the hard rubber by installing an MA Separator in the warehouse. The operation was to recover as much lead as possible and render the material no longer hazardous. As of February 1986, ACE had processed about 200,000 pounds of the material and was storing unprocessed hard rubber in drums within the warehouse (ACE 1986). As of 1988, the material was still being stored in containers and spent batteries were also being stored on pallets (Harrison & Moberly 1988c). Throughout 1989 and 1990, IDEM inspections noted ACE violations involving unauthorized container storage in the warehouse (IDEM 1989a, 1990c). ACE stated that the experimental system was shut down in 1991 because of operating costs, but they had managed to process enough of the material to prove the system's effectiveness. A patent for the system was assigned on July 7, 1992 (Harrison & Moberly 1994a). The system is currently inactive and all equipment is stored in the warehouse. No processed or unprocessed hard rubber was observed being stored in the warehouse during the VSI. ACE stated that the materials had been sold and moved off-site in 1991. The warehouse is currently being used to store and process nonhazardous recyclables such as cardboard, glass, and tin.

Date of Startup:

The first reported activity at the warehouse occurred in 1984. The warehouse was used for storage of hard rubber in piles, storage of spent batteries on pallets, and experimental processing of hard rubber

until about 1991. ACE representatives were unable to provide exact dates of operation and the fate of waste materials removed after 1984.

Date of Closure: The unit is inactive. No regulatory action has been taken by IDEM regarding closure of the warehouse. The waste pile and containers of hard rubber were reportedly removed in 1984 and 1991, respectively. ACE representatives stated during the VSI that these materials were sold to an undisclosed reclaimer.

Wastes Managed: The warehouse has managed spent lead-acid batteries and hard rubber battery casings. This hard rubber is composed of a mixture of lead monoxide, elementary lead, plastic, and other extraneous materials. The lead monoxide and elementary lead is about 46 to 54 percent of the material's total weight (ACE 1985). Untreated, this material is hazardous by characteristic (D008); however according to ACE representatives, it is exempt from regulation under 40 CFR 261.6 and is referred to as a recyclable material. The warehouse is currently being used as a collection center for a community recycling project; it is used to store and process nonhazardous recyclable materials, including cardboard, glass, and tin.

Release Controls: The warehouse is a totally enclosed building and has concrete flooring throughout. No other release controls were observed during the VSI.

History of Documented Releases: No releases from this unit have been documented.

Observations: No hard rubber was observed in the unit during the VSI. The front portion of the warehouse contained the MA Separator (SWMU 6) used for the experimental hard rubber project. This area also contained numerous bales of crushed cardboard, paper drums of crushed glass, and bales of crushed tin from the community recycling project. The

rear of the warehouse contained hundreds of pallets of unused plastic battery casings; these casings were rejected for use by the manufacturer because of manufacturing error. ACE purchased these casings and currently meters them into the MA Separator (SWMU 6) for processing and resale. No evidence of past or current release was observed. Photograph No. 18 shows some of the unused battery casings being stored on pallets.

SWMU 12 **Former Hard Rubber Pile (Process Building)**

Unit Description: The location of this unit is a concrete area outside the south wall of the main process building occupying about 100 square feet. It is also located adjacent to the Polypropylene Loading Area (SWMU 9). The nearest collection sump is located about 30 feet to the southwest. SWMU 11 was reportedly used for temporary storage of crushed hard rubber battery casings. The first observation of this unit occurred in 1985 during an ISBH inspection (ISBH 1985b). ACE reportedly removed the material soon after the inspection, but ACE representatives could not give an exact date during the VSI. Also, there is no record of the removal. The area is currently used to store spare drums and miscellaneous equipment.

Date of Startup: The unit began operation in 1985. This date is estimated based on the first documented reference to the unit. Operations at this location reportedly ceased in 1985 following an ISBH inspection.

Date of Closure: The unit is inactive but it has not undergone closure. The rubber material was reportedly removed in 1985. ACE did not provide information regarding the fate of the materials removed from the area in 1985. The discovery of this unit in 1985 led ISBH to issue an administrative order, Cause N-278, calling for closure of the unit (ISBH 1985e). Failure by ACE to submit a closure plan resulted in

the issuance of another order, Cause H-106, on September 29, 1989 (IDEM 1989b). ACE continued to contest the applicability of the two orders based on its contention that the pile in question was actually recyclable lead product awaiting off-site transport to smelters. During an informal settlement meeting between ACE and IDEM, it was agreed that ACE would bring this area to closure (ICAR 1989b). ACE twice submitted closure plans for the area in late 1989, but both were rejected by IDEM (IDEM 1990b, PRC 1994b). On February 20, 1990, ACE submitted to IDEM a clean-up equivalency plan for the area in question. To date, no response has been issued by IDEM, alternative and the issue remains unresolved.

Wastes Managed:

The unit was used for temporary storage of hard rubber battery casings. This hard rubber is composed of a mixture of lead monoxide, elementary lead, plastic, and other extraneous materials. The lead monoxide and elementary lead make up 46 to 54 percent of the material's total weight (ACE 1985). Untreated, this material is hazardous by characteristic (D008); however according to ACE representatives, it is exempt from regulation under 40 CFR 261.6 and is referred to as a recyclable material.

Release Controls:

The unit has no release controls. All surface drainage from the area is directed to a collection sump about 30 feet to the southwest.

History of Documented Releases:

No releases from this unit have been documented.

Observations:

During the VSI, the area contained three empty drums and a pallet of scrap battery cables. The concrete area showed no visible signs of structural cracks or deterioration. Fragments of polypropylene were scattered about. Photograph No. 19 shows the condition of the area.

SWMU 13	**Former Hard Rubber Pile (1960 S. Meridian Warehouse)**
Unit Description:	The location of this unit is a concrete area between the two warehouse buildings at 1960 S. Meridian (SWMU 11). The area measures about 10 feet by 15 feet and occupies a portion of the former unloading dock for the warehouse. This area was reportedly used for temporary storage of crushed hard rubber battery casings. The first observation of this unit occurred in 1984 during an ISBH inspection. The area reportedly contained 10 to 20 tons of broken hard rubber battery casings (ISBH 1984b). ACE reportedly removed the material soon after the inspection, but ACE representatives could not give an exact date during the VSI. Also, there is no record of the removal. The area is not currently used.
Date of Startup:	The unit began operation in 1984. This date is estimated based on the first documented reference to the unit.
Date of Closure:	The unit is inactive but has not undergone closure. The rubber material was reportedly removed in 1985. The discovery of this unit in 1984 led ISBH to issue an administrative order, Cause N-278, calling for closure of the unit (ISBH 1985e). On January 3, 1989, ACE submitted to IDEM a cleanup equivalency plan for the area (ICAR 1989a). No documented response was issued by IDEM. IDEM issued another order, Cause H-106, on September 29, 1989 (IDEM 1989b). ACE continued to contest the applicability of the two orders based on its contention that the pile in question was actually recyclable lead product awaiting off-site transport to smelters. During an informal settlement meeting between ACE and IDEM, it was agreed that this unit was a hazardous waste pile. ACE's closure plan was being reviewed by IDEM. A remedial action decision was to be forthcoming (ICAR 1989b). The closure plan was rejected by IDEM

(IDEM 1990b). To date, no progress has been made regarding closure of this unit.

Wastes Managed: The unit was used for temporary storage of hard rubber battery casings. This hard rubber is composed of a mixture of lead monoxide, elementary lead, plastic, and other extraneous materials. The lead monoxide and elementary lead make up 46 to 54 percent of the material's total weight (ACE 1985). Untreated, this material is hazardous by characteristic (D008).

Release Controls: The unit has no release controls. It is bordered on three sides by the warehouse walls and the dock area. Surface drainage is directed toward the dock, as was evidenced by pooled rainwater observed during the VSI. There are no drains or sumps in the area.

History of Documented Releases: No releases from this unit have been documented.

Observations: During the VSI, the area was free of materials except for several plastic crates. The concrete area showed no visible signs of structural cracks or deterioration. Photograph No. 20 shows the condition of the area.

SWMU 14 **Former Wastewater Discharge Area**

Unit Description: Following an ISBH inspection of the facility in 1975, it was discovered that ACE was discharging untreated wastewater containing lead (D008) and spent electrolyte (D002) through a layer of crushed limestone to an in-ground absorption system. An analysis of the wastewater showed it to contain lead concentrations of 134 mg/L (ISBH 1976). ISBH determined that this method of discharge was a

potential threat to the quality of groundwater in the area and requested ACE to investigate proper methods of disposing of this wastewater (ISBH 1976). No records were found during the PA/VSI relating to further action by ISBH on this issue. The exact size and location of this unit is unknown. During the VSI, ACE representatives indicated that ILWD Inc. of Indianapolis was contracted to dispose of the spent electrolyte. No estimated volumes or dates were provided for spent electrolyte shipments off site.

Date of Startup: The exact date that these operations began is not known. However, the operations reportedly ceased in 1976 following the ISBH inspection.

Date of Closure: The unit is inactive and there is no record of closure. Operations at the unit reportedly ceased following an ISBH inspection in 1976.

Wastes Managed: The unit received untreated wastewater (D002, D004, D006, and D008) that may have contained a mixture of spent electrolyte, storm water, and lead-bearing sediment. The wastewater was tested in 1975 and showed a lead concentration of 134 mg/L. This wastewater is considered a hazardous waste by characteristic.

Release Controls: The unit reportedly had no release controls. It was an in-ground unit.

History of Documented Releases: In 1975, an ISBH inspection revealed that untreated wastewater was being discharged to a ground absorption system.

Observations: PRC was unable to observe this unit because the unit no longer exists at the facility. Also, ACE representatives provided no information regarding the former location of the unit.

SWMU 15	**Former Furnace**
Unit Description:	Before the introduction of saws at the facility, tar-topped batteries were manually broken, and the tops were incinerated in a large furnace. Details of the furnace's size, construction, and location were not available from the information gathered during the PA/VSI.
Date of Startup:	The unit reportedly began operation in the late-1940s.
Date of Closure:	There are no closure records for this unit; however ACE representatives indicated that the unit ceased operation in 1967 when the first high-speed saw was placed in service.
Wastes Managed:	The unit managed tar-topped automobile batteries with hard rubber casings. These batteries may have contained spent electrolyte (D002) and lead plates, slugs, and oxides (D004, D006, and D008).
Release Controls:	There is not enough information available about the unit's size, construction, or location to determine the presence or absence of release controls. ACE did not provide any information regarding the unit's structure.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC was unable to observe this unit because the unit no longer exists at the facility. Also, ACE representatives did not provide any information about the unit's former location.

4.0 AREAS OF CONCERN

PRC identified two AOCs during the PA/VSI. These AOCs are discussed below.

AOC 1 Bluff Road Runoff Area

In November 1987, ACE contracted Belasco Drilling to drill four soil borings along Bluff Road just south of the facility. Samples were collected to a depth of 4 feet in each boring. Samples from the top 24 inches and the bottom 24 inches of each boring were composited and submitted for analysis for total lead by EP toxicity extraction. Lead concentrations in the top-24-inch samples ranged from 7,100 to 10,000 ppm. Lead concentrations in the bottom-24-inch samples ranged from 97 to 818 ppm (OALR 1987a, 1987b).

ISBH reportedly inspected the facility on October 1, 1984. A summary of that visit indicates that scoop samples of surface dust collected along Bluff Road showed 6.5 parts per million (ppm) extraction procedure (EP) toxicity lead and that surface contamination had resulted from runoff over the entire facility and along Bluff Road (ISBH 1984b). From the files reviewed during the PA/VSI, PRC could not verify the date or location of samples collected. Also, the actual sample results were not found in the files or were they provided by ACE.

The lead concentrations found in the borings drilled just south of the ACE facility in 1987 raise a concern that lead-contaminated runoff from the facility may have contaminated soils along Bluff Road. This conclusion is based on the apparent close proximity of the highest observed lead values and the apparent direction of facility runoff. Also, The southern portion of the facility was not concrete-paved and diked until about 1985. Judging from the volume of storm water contained within the diked containment observed during the VSI (Photograph No. 8), contaminated runoff may have crossed the southern facility boundary and affected the soils along Bluff Road.

AOC 2 On-Site Release Areas

Soils throughout the facility are potentially contaminated from historical operations involving accumulation of lead-bearing materials in unprotected areas throughout the facility. This suspected contamination cannot be linked to any past or presently identified SWMU except for SWMU 14. Operations at SWMU 14, the Former Wastewater Discharge Area, is suspected to have released lead-contaminated wastewater to the ground. The locations of lead-bearing material accumulation throughout the facility has changed considerably over the years. Miscellaneous piles of material are referred to in many of the inspections conducted by ISBH and IDEM. Based on a review of these inspection reports during the PA, numerous visual observations have been documented that indicate potentially contaminated soils throughout the facility. However, the location of these areas and details of the alleged material piles could not be determined from the information reviewed. These inspections and related sampling excursions are presented below.

Following an Indiana State Board of Health (ISBH) inspection of the facility in 1975, it was discovered that ACE was discharging untreated wastewater containing lead (D008) and spent electrolyte (D002) through a layer of crushed limestone to an in-ground absorption system. Analysis of the wastewater showed it to contain lead concentrations of 134 milligrams per liter (mg/L) (ISBH 1976). This Former Wastewater Discharge Area (SWMU 14) is described further in Section 3.0.

On August 28, 1984, ISBH conducted a RCRA inspection of the ACE facility. ISBH collected an undetermined number of samples during the inspection. According to the inspection report, a pile of lead and crushed cases was sampled, and the soil adjacent to the pile was also sampled (ISBH 1984a). ACE could not provide the actual sampling results for the surrounding soil samples; nor were they found by PRC during the file reviews. Sample results were found from the material pile that showed this material to contain 21 ppm of lead. The inspection report also indicated that ACE intended on cementing unprotected portions of the site. The ISBH reportedly visited the facility again on October 1, 1984. A summary of that visit indicates that on-site

surface contamination had resulted from runoff over the entire facility (ISBH 1984b). From the files reviewed during the PA/VSI, PRC could not verify the date or location of samples collected. Also, the actual sample results were not found in the files or were they provided by ACE.

On March 1, 1985, ISBH conducted a RCRA inspection and observed visually discolored (reddish) soil at the south side of the building. ISBH believed the discolored soil to be contaminated by lead from runoff (ISBH 1985a). No evidence other than visually discolored soil was noted to substantiate ISBH's observations. On August 22, 1985, ISBH indicated that samples were collected from two areas at the facility. One sample was collected from soils near the industrial battery storage area on the north side of the acid building. Another sample was collected from the pile of hard rubber cases stored between the acid building and the battery storage building (ISBH 1985c). The sample results and the exact sampling locations were not available for review during the PA/VSI.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified 15 SWMUs and two AOCs at the ACE facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. The AOCs are discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3, located at the end of this section, summarizes the SWMUs and AOCs at the facility and the recommended further actions.

SWMU 1 **Unloading Dock**

Conclusions: The Unloading Dock and the adjacent staging area are used to receive shipments of batteries for processing. The batteries are palletized and are reportedly stored no longer than 3 days. ACE does not currently label the battery pallets with accumulation start dates. The dock and staging area are concrete-paved, and no releases from the unit have been documented. The potential for environmental release is low from this SWMU.

Recommendations: PRC recommends no further action at this time.

SWMU 2 **Saw Room and Tumbler**

Conclusions: The Saw Room and Tumbler provide the initial stages of the recycling process. Batteries are cut open, spent electrolyte drains out, and lead plates and casings are separated in the Tumbler. The concrete floor beneath the saw assembly degrades rapidly from spilled electrolyte. The potential for environmental release is low from this SWMU.

Recommendations: Secondary containment for drained electrolyte should be provided beneath the saw assembly to aid in directing the electrolyte to the trough and sump and to prevent ongoing deterioration of the concrete floor.

SWMU 3 **Lead Group Pile**

Conclusions: The Lead Group Pile is a three-sided, concrete-lined storage bay for lead plates, slugs, and oxides. These materials are accumulated in this area temporarily until transfer to the Nonindustrial Lead Storage Yard (SWMU 8) and ultimate transfer to the Lead Loading Area (SWMU 10). The concrete bay was free of structural cracks and all materials are solid and contained within the area. There are no documented releases associated with this unit and the potential for environmental release from this unit is low.

Recommendations: PRC recommends no further action at this time.

SWMU 4 **Collection Sumps and Troughs**

Conclusions: ACE operates five collection sumps and a connecting trough network designed to collect wastewater and process spillage throughout the facility. This network of sumps and troughs directs all wastewater to the Wastewater Treatment System (SWMU 5) for treatment. The sumps are concrete-lined and constructed below grade. They have been in operation since 1967. Their structural integrity could not be visually inspected because they were filled with wastewater during the VSI. There is no documented history of release from this unit; however, the potential for release to subsurface soils is low to moderate because of the unit's age and unknown integrity.

Recommendations: ACE should inspect each sump for structural soundness and make repairs as needed. No further action is recommended for potential subsurface soil contamination. The entire facility is covered with up to 8 inches of concrete.

The potentially contaminated soils could not be remediated practically and probably do not pose a threat to deep groundwater resources in the area.

SWMU 5 **Wastewater Treatment System**

Conclusions: The Wastewater Treatment System consists of eight aboveground, steel tanks and is a totally enclosed treatment system. The system manages spent electrolyte, storm water, and process spillage from throughout the facility. Magnesium hydroxide is used to precipitate toxic metals and to neutralize the wastewater for permitted discharge to the city POTW. Secondary containment is provided for the sulfuric acid tanks, and they are equipped with overfill alarms. Wastewater is processed in daily batches; therefore, the system has a limited capacity. The potential for release from this system to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 6 **MA Separator**

Conclusions: The MA Separator consists of a grinder and four water-filled auger bins. Battery casings and tops are ground and discharged to the series of bins, where plastic is washed and separated from residual lead fragments and oxides. This unit is located inside the process building and is underlain by concrete flooring. Any spillage from the unit is contained by the floor, directed to the nearby collection trough, and routed to Wastewater Treatment System (SWMU 5). No releases from this unit have been documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 7 **Industrial Lead Storage Yard**

Conclusions: This unit is located outside the south end of the process building. It is a concrete-lined, three-sided bay used to collect industrial battery lead. Large industrial batteries are opened in this area and are allowed to drain electrolyte to a nearby sump. Any runoff from the area is also contained by this sump. No releases from this unit have been documented. The potential for release from the unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: ACE should install secondary containment to collect spent electrolyte generated from the draining activity.

SWMU 8 **Nonindustrial Lead Storage Yard**

Conclusions: This unit is located adjacent to Industrial Lead Storage Yard (SWMU 7) and is identical in size and construction. Lead from the group pile at Saw Room and Tumbler (SWMU 2) is transferred to SWMU 7, which receives the lead recovered from processing of all nonindustrial batteries. Runoff from SWMU 7 is contained by a nearby sump. No releases from this unit have been documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 9 **Polypropylene Loading Area**

Conclusions: The Polypropylene Loading Area is located just outside the southeast side of the process building. Ground and washed polypropylene is blown through a metal conduit from MA Separator (SWMU 6) to a transport trailer parked SWMU 9. The material is transported off site to plastics recyclers. The area is contained by concrete paving. No releases from this unit have been

documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 10 **Lead Loading Area**

Conclusions: The Lead Loading Area is located at the south edge of a raised concrete pavement adjacent to Industrial Lead Storage Yard (SWMU 7). Recovered lead from SWMU 7 and Nonindustrial Lead Storage Yard (SWMU 8) is transferred by front-end loader to a parked trailer at SWMU 10 for off-site transport to smelters. The area beneath the trailer is concrete-paved, and all runoff is directed to a collection sump located about 50 feet to the southwest. No releases from this unit have been documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 11 **Warehouse (1960 S. Meridian)**

Conclusions: ACE leases space in a warehouse across Bluff Road from its main facility. In 1984, ACE began storing industrial batteries and broken hard rubber battery casings inside the warehouse. During an ISBH inspection in 1984, as much as 50 tons of hard rubber casings was being stored in a pile in the warehouse. ACE reportedly removed the materials. ACE also used the warehouse for experimental processing of hard rubber casings from about 1985 to 1991. During this time, ACE stored hard rubber casings in containers. The warehouse is currently used as a collection center for a community recycling project. The warehouse contains, cardboard, glass, and tin. ACE also stores unused battery casings that were rejected by a manufacturer. These casings are included into the plastic processed at the main facility. No releases from

this unit have been documented. The potential for release to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 12 **Former Hard Rubber Pile (Process Building)**

Conclusions: The location of this unit is a concrete area occupying about 100 square feet outside the south wall of the main process building. All runoff from this area is directed to a collection sump located about 30 feet to the southwest. This area was reportedly used for temporary storage of crushed hard rubber battery casings (D004, D006, and D008). The first observation of to this unit occurred in 1985 during an ISBH inspection (ISBH 1985b). ACE reportedly removed the rubber material soon after the inspection. ACE is currently under an administrative order to close the unit. No releases from this unit have been documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 13 **Former Hard Rubber Pile (1960 S. Meridian Warehouse)**

Conclusions: The location of this unit is a concrete area between the two warehouse buildings at 1960 S. Meridian (SWMU 11); the area served as an unloading dock for the warehouse. SWMU 13 reportedly was used for temporary storage of crushed hard rubber battery casings (D004, D006, and D008). The first observation of this unit occurred in 1984 during an ISBH inspection. About 10 to 20 tons of broken hard rubber battery casings were stored in a pile (ISBH 1984b). ACE reportedly removed the material soon after the inspection. ACE is currently under an administrative order to close the unit. No releases from this unit have been documented. The potential for release from this unit to groundwater, surface water, air, and on-site soils is low.

Recommendations: PRC recommends no further action at this time.

SWMU 14 **Former Wastewater Discharge Area**

Conclusions: Little information exists concerning the operation of this unit. Systematic releases from this unit may have impacted on-site soils and groundwater. The exact dates of operation for this unit are unknown, however, the potential for releases to have impacted soils and groundwater is considered moderate to high based on the uncontrolled nature of the land-based discharge. The unit's exact location is not known, and any contamination lies beneath the concrete pavement and may be present throughout the facility. The presence of the concrete pavement limits the potential for leaching of contaminated soils. Subsurface soil contamination at the facility has not been demonstrated because of lack of on-site soil data. However, based on documented releases of lead-contaminated electrolyte and the general lack of continuous concrete paving across the facility during its early years of operation, lead-contaminated soils are likely to be present beneath much of the facility. The future threat that these potentially contaminated soils may pose cannot be determined without an extensive on-site soils investigation. The practicality and economic feasibility of such an investigation is questionable because (1) the facility is completely covered by concrete, (2) there are no apparent contributing sources present at the site, and (3) adjacent scrap dealers may be contributing contaminants to soils which may confuse any possible delineation of contaminated media.

Recommendations: PRC recommends no further action at this time.

SWMU 15 **Former Furnace**

Conclusions: Little information exists concerning the operation of this unit. Any release from this unit may have been contained within the process area or may have been released to bare soils. The unit's exact location is not known, and any

contamination lies beneath the concrete pavement throughout the facility. The presence of the concrete pavement limits the potential for leaching of contaminated soils.

Recommendations: PRC recommends no further action at this time.

AOC 1 **Bluff Road Runoff Area**

Conclusions: In November 1987, ACE contracted Belasco Drilling to drill four soil borings along Bluff Road just south of the facility. Samples were collected to a depth of 4 feet in each boring. Samples from the top 24 inches and the bottom 24 inches of each boring were composited and submitted for analysis for total lead by EP toxicity extraction. Lead concentrations in the top-24-inch samples ranged from 7,100 to 10,000 ppm. Lead concentrations in the bottom-24-inch samples ranged from 97 to 818 ppm (OALR 1987a, 1987b). IDEM has not conducted confirmatory sampling in this area, and no regulatory action has been taken.

Recommendations: PRC recommends that ACE conduct studies to establish historical runoff patterns from the facility down Bluff Road. Once this runoff pathway is established, shallow (3-foot) soil borings should be drilled along the pathway. Soil samples should be collected and analyzed for total lead, arsenic, and cadmium. Based on these results, perimeter monitoring may be required.

AOC 2 **On-Site Release Areas**

Conclusions: Battery salvaging operations have occurred at the facility since the mid-1940s. No records of historical operations were found prior to 1975. Though the entire site is currently covered with concrete pavement, historical records indicate that portions of the facility were not paved before about 1985. Inspections conducted by ISBH and IDEM before and during 1985 have documented observations of visual soil contamination in unprotected areas

outside the main process building. The only record of these unprotected areas is a sketch map from a 1985 inspection which shows the extreme southwestern edge of the facility having bare soils. The sketch map also shows waste piles located adjacent to these unprotected soils. Based on the information reviewed, the locations of lead-bearing material accumulation throughout the facility has changed considerably over the years. Miscellaneous piles of material are referred to in many of the inspections conducted by ISBH and IDEM. However, the location of these areas and details of the alleged material piles could not be determined from the information reviewed.

Additionally, the discovery of the Former Wastewater Discharge Area (SWMU 14) in 1975 indicates that an area of the facility was used for treatment and ground discharge of lead-bearing wastewater. This practice occurred for an undetermined length of time. The exact location of SWMU 14 is not known, however, the releases that reportedly occurred in this area may have impacted a wide area of on-site soils and possibly shallow groundwater.

Because current battery salvaging operations are contained above the facility-wide concrete pavement, the accumulation of recyclable materials on the concrete is not likely to be a contributing source to any existing subsurface contamination caused by historical operations. However, the presence of concrete-lined Collection Sumps and Troughs (SWMU 4) may provide a contaminant migration pathway because of their inground construction and questionable structural integrity.

Recommendations: Based on the documented releases lead-contaminated wastewater and the reported accumulation of lead-bearing materials in and around unprotected areas of the facility during the early years of operation, lead-contaminated soils are likely to be present beneath much of the facility. The future environmental threat that these potentially contaminated soils may pose cannot be determined without an extensive soils investigation at the facility. The

practicality of such an investigation is questionable because (1) the facility is completely covered by concrete pavement, (2) current operations and waste management practices do not appear to be a contributing source to any existing subsurface contamination, and (3) the facility lies within a heavily industrialized area where adjacent scrap operations and other industries may be contributing contaminants to nearby soils.

Because there is a significant lack of information regarding historical operations and the former locations and descriptions of waste management areas, PRC recommends that ACE provide, at a minimum, detailed historical records of operations at SWMU 14. ACE should also provide a historical chronology of all structural site improvements including concrete paving, building modifications, and the addition of containment structures. This chronology should be accompanied by a corresponding record of waste management activities in all unimproved areas of the facility. A detailed review of this information may indicate areas of the site where soil contamination (suspected hot spots) can be isolated for further investigation. ACE may be required to conduct characterization sampling of these hot spots beneath the facility.

TABLE 3

SWMU AND AOC SUMMARY

	SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1.	Unloading Dock	1967 to present	None	None
2.	Saw Room and Tumbler	Mid-1970s to present	None	Provide secondary containment for spilled acid
3.	Lead Group Pile	Mid-1970s to present	None	None
4.	Collection Sumps and Troughs	Mid-1970s to present	None	Conduct structural integrity testing
5.	Wastewater Treatment System	Late-1970s to present	None	None
6.	MA Separator	1967 to present	None	None
7.	Industrial Lead Storage Yard	1967 to present	None	Provide secondary containment for spilled acid
8.	Nonindustrial Lead Storage Yard	1967 to present	None	None
9.	Poly-propylene Loading Area	Mid-1970s to present	None	None
10.	Lead Loading Area	Mid-1970s to present	None	None
11.	Warehouse (1960 S. Meridian)	1984 to 1991	None	None

TABLE 3 (Continued)

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
12. Former Hard Rubber Pile (Process Building)	1985	None	None
13. Former Hard Rubber Pile (1960 S. Meridian Warehouse)	1984 to 1985	None	None
14. Former Wastewater Discharge Area	Unknown to 1976	Documented by inspection	None
15. Former Furnace	1940 to 1967	None	None

AOC	Dates of Operation	Evidence of Release	Recommended Further Action
1. Bluff Road Runoff Area	1987 to present	Soil contaminated with lead (10,000 ppm) found in off-site soil borings	Establish facility runoff patterns; conduct further soil sampling
2. On-Site Release Areas	Mid-1940s to 1988	Visual observations of potentially contaminated soils during inspections	Investigate extent of contaminated soils and threat to shallow groundwater

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APPENDIX A

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

(14 Pages)

VISUAL SITE INSPECTION SUMMARY

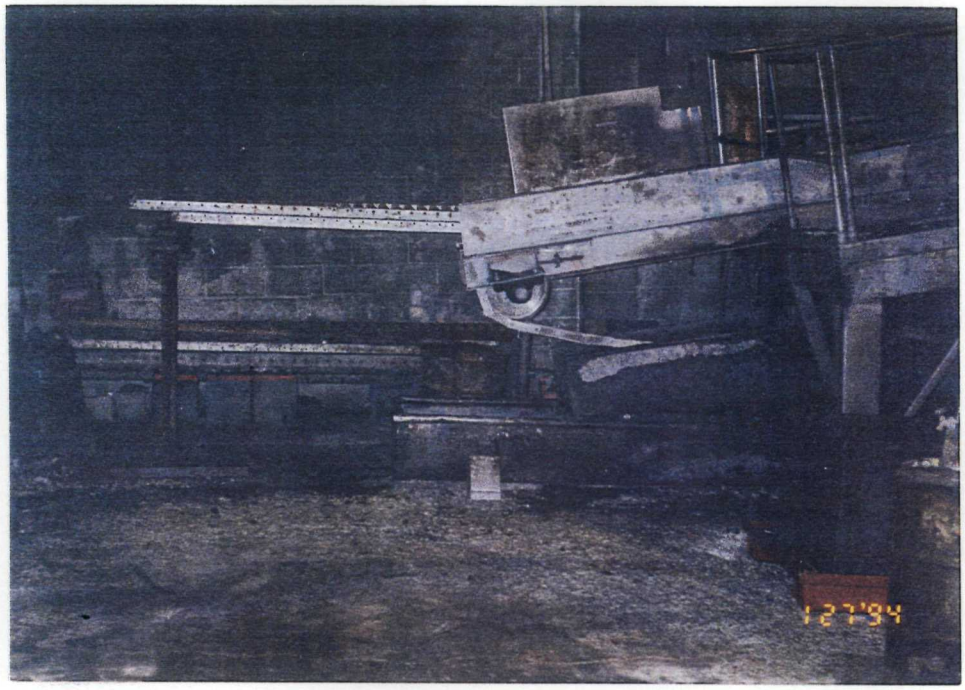
ACE Battery, Inc. (ACE)
1966 Bluff Road
Indianapolis, Indiana 46225
IND 016 389 546

Date:	January 27 and 28, 1994
Primary Facility Representative:	Mr. Bob Hartup, Environmental Director
Representative Telephone No.:	(317) 786-1997
Additional Facility Representatives:	Mr. James A. Kirkham, President Mr. Jay M. Brodey, Attorney from Harrison & Moberly
Inspection Team:	Mr. Robert Melton, PRC Environmental Management (PRC) Mr. Tim Oliver, PRC
Photographer:	Mr. Tim Oliver, PRC
Weather Conditions:	Overcast, light drizzle, 40 °F
Summary of Activities:	The visual site inspection (VSI) began at 12:45 p.m. on January 27, 1994, with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then discussed the facility's past and current operations, solid wastes generated, and release history. Facility representatives provided the inspection team with copies of requested documents. The VSI tour began at 3:30 p.m. and consisted of a walkthrough of the main facility and warehouse located at 1960. S. Meridian. The facility was not operating at the time of the inspection due to recent freezing weather. Also recent rains had caused significant roof leakage throughout the process building and warehouse. The VSI concluded at 4:40 p.m., after which the inspection team held an exit meeting with facility representatives. The inspection team left the facility at 4:50 p.m.

The inspection team returned to the facility on the morning of January 28, 1994 to gather additional data. A meeting was held from 9:00 to 10:30 a.m. to discuss ACE's interpretation of its regulatory status. Information was also gathered concerning waste volumes, historical operations, and analytical data from past sampling investigations. The VSI was completed and the inspection team left the facility at 10:30 a.m..

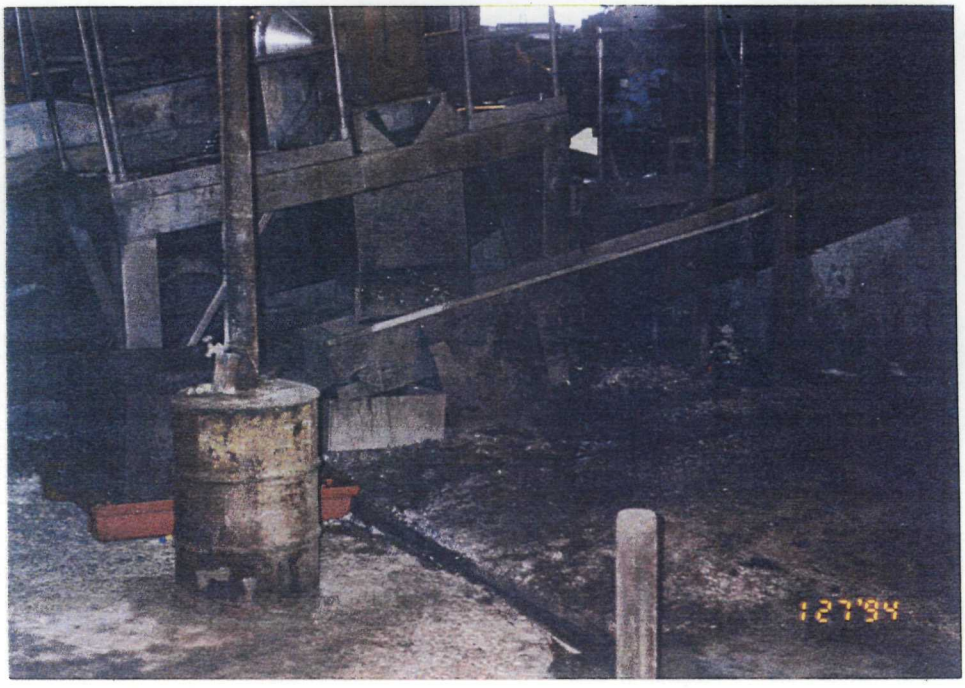
Photograph No. 1 Location: SWMU 1
Orientation: North Date: 01/27/94
Description: Staging area for nonindustrial batteries near Unloading Dock

Photograph No. 2 Location: SWMU 1
Orientation: West Date: 01/27/94
Description: Industrial battery staging area near Unloading Dock



Photograph No. 3
Orientation: South
Description: Primary conveyor to saw assembly

Location: SWMU 2
Date: 01/27/94

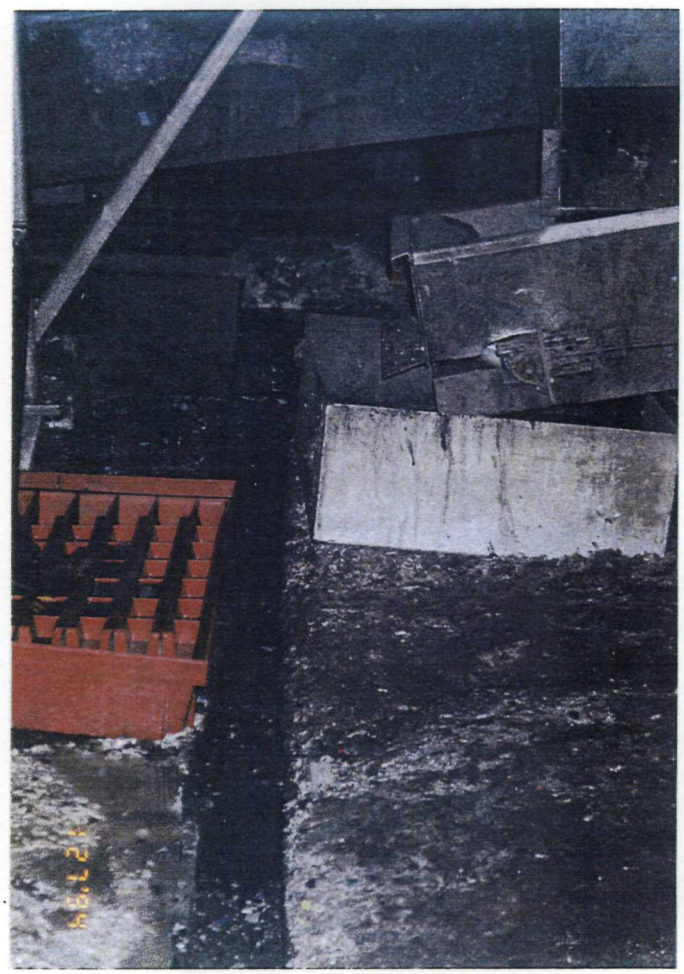


Photograph No. 4
Orientation: South
Description: Secondary conveyor and saw assembly

Location: SWMU 2
Date: 01/27/94

Photograph No. 5
Orientation: Southeast
Description: Lead group pile located beneath the Tumbler

Location: SWMU 3
Date: 01/27/94



Photograph No. 6
Orientation: South
Description: Collection trough beneath saw assembly

Location: SWMU 4
Date: 01/27/94

Photograph No. 7
Orientation: South
Description: Collection trough along west side of Tumbler

Location: SWMU 4
Date: 01/27/94

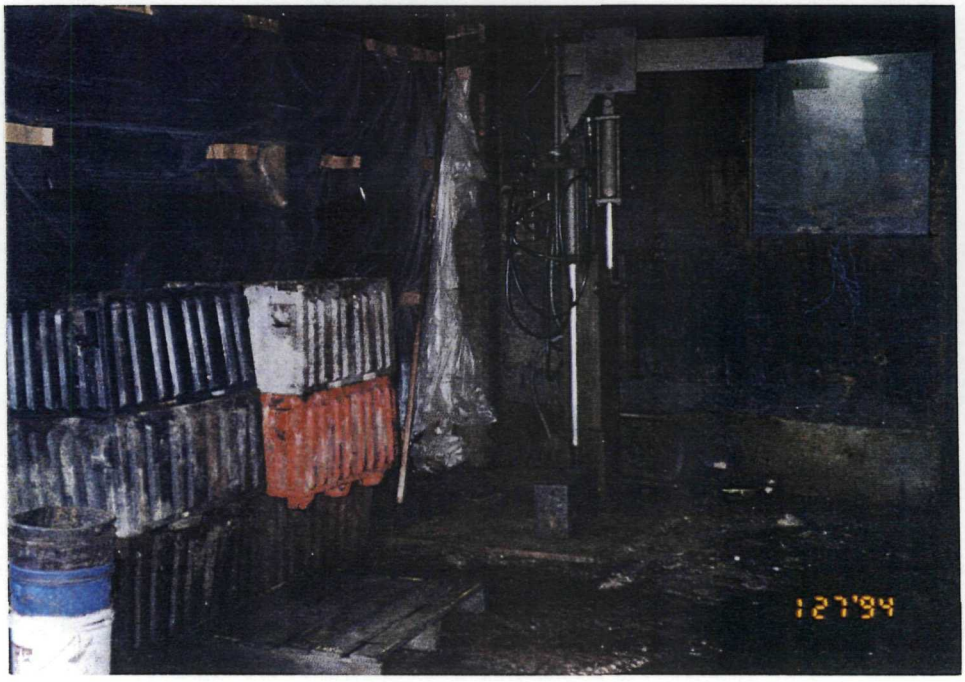
Photograph No. 8 Location: SWMU 4
Orientation: Southwest Date: 01/27/94
Description: Concrete dike containing storm water at southeast corner of the facility; note small pipe in center used to pump wastewater to Wastewater Treatment System (SWMU 5)

Photograph No. 9 Location: SWMU 5
Orientation: Northwest Date: 01/27/94
Description: Magnesium hydroxide storage tank at Wastewater Treatment System (SWMU 5); white material is magnesium salt precipitated along piping and tank walls

Photograph No. 10
Orientation: West
Description: Grinder mechanism of MA Separator

Location: SWMU 6
Date: 01/27/94

Photograph No. 13 Location: SWMU 7
Orientation: West Date: 01/27/94
Description: Industrial Lead Storage Yard; note large, overturned battery being drained



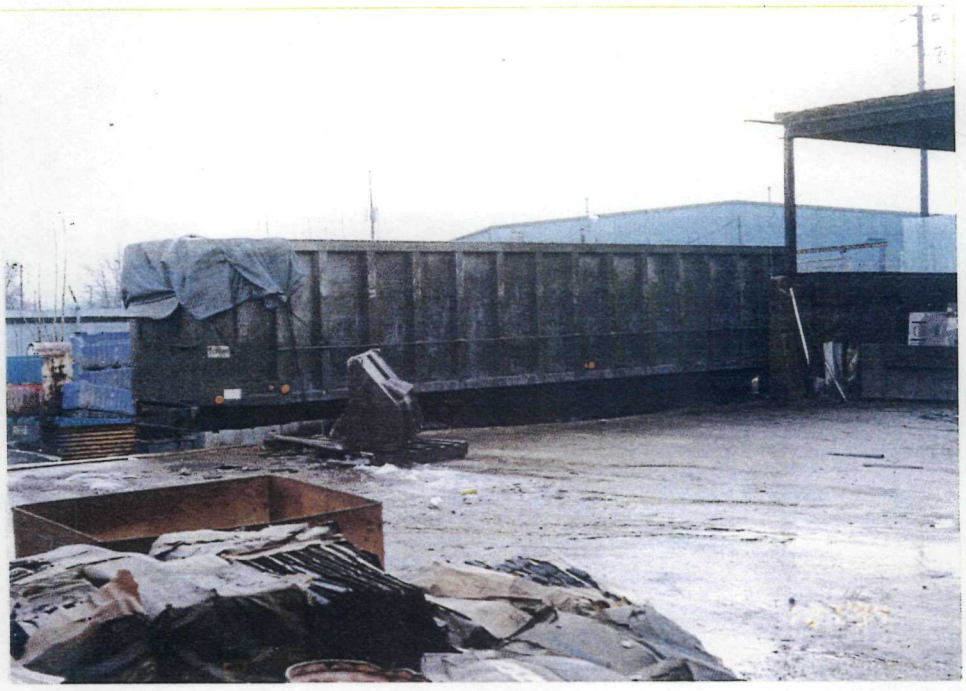
Photograph No. 14 Location: SWMU 7
Orientation: Southwest Date: 01/27/94
Description: Hydraulic chisel (can opener) used to open metal-cased industrial batteries

Photograph No. 15
Orientation: West
Description: Nonindustrial Lead Storage Yard

Location: SWMU 8
Date: 01/27/94

Photograph No. 16
Orientation: East
Description: Transport trailer partially filled with washed polypropylene

Location: SWMU 9
Date: 01/27/94



Photograph No. 17 Location: SWMU 10
Orientation: South Date: 01/27/94
Description: Transport trailer used to collect lead groups before off-site transport to smelters

Photograph No. 18 Location: SWMU 11
Orientation: North Date: 01/27/94
Description: Miscellaneous equipment and unused battery casings stored in warehouse (1960 S. Meridian); casings are metered in with plastic processed at the main facility

Photograph No. 19 Location: SWMU 12
Orientation: North Date: 01/27/94
Description: Location of Former Hard Rubber Pile (outside Process Building)

Photograph No. 20 Location: SWMU 13
Orientation: East Date: 01/27/94
Description: Location of Former Hard Rubber Pile (1960 S. Meridian Warehouse)

APPENDIX B

VISUAL SITE INSPECTION FIELD NOTES

(13 Sheets)

Field Logbook No. _____ Date 1/27/94

Project No. 309R05032INIA

Project Name ACE Battery PA-VSI

1140 PRC arrive to site. Take a few minutes to get settled. Personnell present include:

J. Brody - Harding & Mahoney
R. Melton - PRC
Jim Kirkham - ACE
T. Oliver - PRC
B. Hartup - ACE

Briefly discuss the purpose of the VSI. Mr. Oliver gave introduction.

Mr. Brody suggested he give us a brief history of the site and overview of regulatory status.

R. Melton 1/27/94

Field Logbook No. _____ Date 1/27/94

Project No. _____

Project Name ACE Battery PA-VSI

R. Melton introduces as primary author and gives overview of information needed for this report.

1430 Begin walkthrough at loading area

leaky roof throughout staging area

dust to conveyor

removable panel in wall to extend conveyor

3 x 3 x 4 deep Sump 1

Jack Leonard - ACE consultant arrives to join walkthrough and answer questions.

R. Melton

Field Logbook No. _____ Date 1/27/91

Project No. _____

Project Name ACE

Large sump round w/ RA
10 x 8 x 7 deep

Reactors 300 gal each
one 350 gal

Clarifier 2400 gal

all tanks installed 15 years ago.

after going through trouble the air piston kicked out to the product pile and plastic goes to grinder that empties into 3-tiered sink/float system

R. Melton

Field Logbook No. _____ Date 1/27/91

Project No. _____

Project Name ACE

operator 3 mechanical material comes out lead into 1st and second and plastic materials into 3rd. material caught in metal openhead bins 2.5' square or drums. or plastic 2.5' container lead is kicked out to area under trailer kept for 3 days. area 15' x 30' x 6.5' tall concrete walls 12" thick loaded each 3 days by trailer

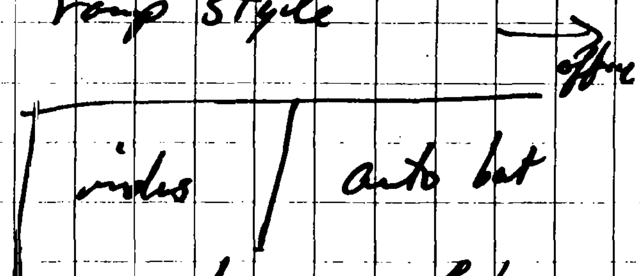
R. Melton

Field Logbook No. ______ Date 1/27/94

Project No. ______

Project Name ACE

out onto
3rd sump 5' deep 5' square
ramp style



because of bypass
industrial batteries are
dumped and stripped
in bay.

Warehouse area across street
other contracted concrete storage
area. Now used to store
trailer for plastics by witco.

R. Melton

Field Logbook No. ______ Date 1/27/94

Project No. ______

Project Name ACE

warehouse kept locked.

SWI Sam Wolkoff
Industries

Jims Church and
Fireside restaurant
finish recyclables

Also storing battery cases
rejected from manufactures
? ~12-15 pallets

R. Melton

Field Logbook No. _____ Date 1/27/94

Project No. _____

Project Name ACE

1540 completed walkthrough and went back to office. had casual discussion upon exit. Said we would remain about 0900 on 1/28/94.

1550 PRC off site for day.

Robert Melton

Field Logbook No. _____ Date 1/28/94

Project No. _____

Project Name ACE

0820 PRC began drive around facility to identify surrounding land use T. Oliver taking notes

0900 drove back on site to conclude inspection Overlay list of follow up questions.

asked specifically about ACE interpretations of 266.6. ACE feels that they do qualify as generator-reclaimer and are subject to 261 265 excluding waste analysis and manifesting

NO see next page.

Robert Melton

Field Logbook No. _____ Date 1/28/94

Project No. _____

Project Name ACE Battery

Gathering specific info on volumes of float/ink tanks, part operations. Clean f/s tanks once every two months.

Old warehouse operated by prior co. ACE office area was old coal yard.

ACE gets all water from city.

Further clarification of regulatory status reveals that ACE does not feel they should be regulated despite the storage

R. Melton

Field Logbook No. _____ Date 1/28/94

Project No. _____

Project Name ACE

condition of 2666. They said that IDEM will not regulate them if ACE maintains less than 90 day storage. However, ACE is not dating shipments currently. They did date shipments for a short time a few months ago but IDEM didn't acknowledge. ACE is confused as to what IDEM's position is. ACE recommends PRC talk to IDEM.

R. Melton

Field Logbook No. _____ Date 1/28/24

Project No. _____

Project Name ACE

1030 PRC concludes the VSI and proceeds to walk around a side of the warehouse area not visited the previous day. PRC off site to visit State officer to gather well logs and wetlands info.

R Matthews

Field Logbook No. _____ Date _____

Project No. _____

Project Name _____

Field Logbook No. NV-001 Date 1/27/93

Project No. 309R05032 INIA

Project Name Ace Battery

1245 Arrive at the facility.
Tim Oliver, Robert Melton PRC
Inkland, Bob Hartup, Inkland and Ivy Swadie
Raining, 40°F No wind.
Discuss purpose of inspection
and background of PA/VSI.
• Inspection by IDEM 1984 and 1
another ⇒ NOV N-278
had alot of meetings.
→ in '84 hard rubber ebonite
stored on east and west side of road
• Agreed Order - cleanup of east
side plastic. Five 10K capped
cleanup equivalent of Lot 10 acre.
J. Garrison was to rule on RSRC
⇒ platest groups are product
• IDEM said H-106 - Part A+B and
Closure. Called them TSDF.

1/27/93

Field Logbook No. NV-001 Date

Project No.

Project Name 1/27/93

• Stalemate since then.
⇒ Sent in plans for capping + closure.
⇒ Notified of deficiencies year later.
⇒ filed appeal, went to EPA filed
reaffirmment of status.
⇒ Filed a new action (when?)
• 266(g) first person regulated
⇒ generator, store for 90 days
[store stuff for 4 or 5 days]
Also submitted request for variance
to the regs to EPA.
⇒ Plan to prepare motion, IDEM, to
reach a settlement.
[mentions (spill in 2 years]
- Receive batteries - industrial and home
power, etc. - from 22 states.
- Leaching process patent hard rubber.

Field Logbook No. NV-001 Date 1/27/93

Project No.

Project Name

- Never shipped anything to Adams Center Landfill only asked for a cost estimate

0.75 acres west side

___ acres on east side owned by TKT leasing [Todd, Kirth, Tom]

Lie's building dimensions

___ dimensions on east side

West side chain link or metal fencing. Posted. Watched

Built here in late 1940s

Battery Salvage Company. ← division

Ace Battery began in 1967

8 employees 8a 4p

Oldest part in office section

burned in 1963 most everything.

Field Logbook No. NV-001 Date

Project No.

Project Name

~~Several~~ Pretty much same operation, different machines

→ [oven] → [drum] → truck tar top
pulled

...... 70

plastic top

→ [saw] → [dump] → off
by hand

------

in 70's would wash plastic to collect oxides and blow plastic for recovery

------

now cut top → grind → sink float sep

5,000 automotive batteries/day max

~3,500 equivalent /day avg.

- talk about PFD

[signature] 1/27/93

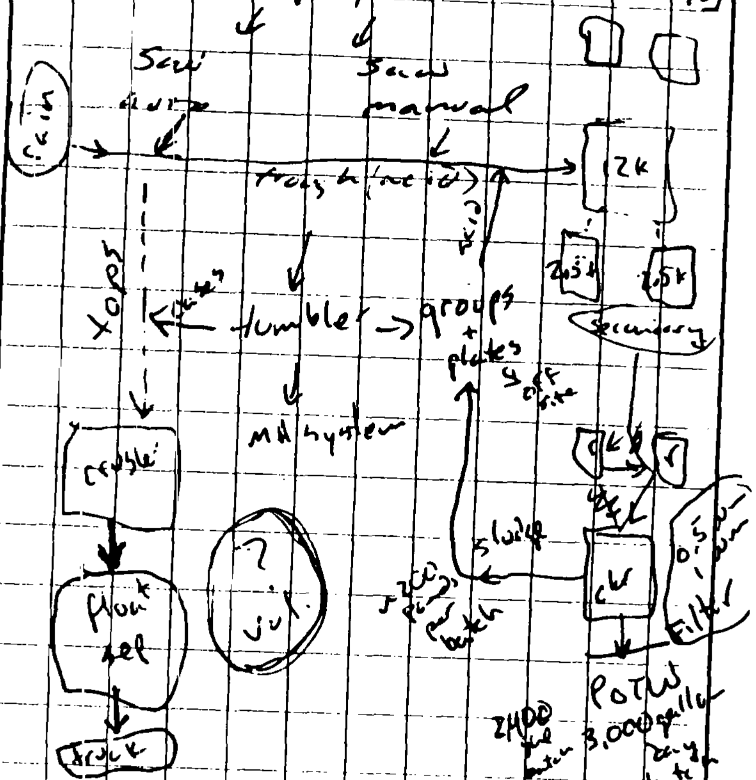
Field Logbook No. NV-001 Date 1/27/93

Project No. [signature]

Project Name

received

have a staging area [not always]



treatment system always in place. Waste acid has never been taken off-site. Quote.

Have agreement for 2 day

Field Logbook No. NV-001 Date 1/27/93

Project No. [signature]

Project Name

Have never done anything with the hard rubber washing

also have steel casing → clean with steam cleaner [plastic inside goes to rubber]

sell hard rubber to smelter (IA Industries)

do not process them on-site

steel to SW Industries and K+F Industries. Indianapolis.

Witco Corp. battery case manufacturer Indianapolis 1054180lb in 1992

Pb. Exide IN Refined Metals Muncie, Beach Grove, IN

General Smelting College Grove, TN

Self monitoring and City monitoring

No excursions → mismonitoring by city resulted in a one time low pH problem - probable problem.

Field Logbook No. NV-001 Date

Project No.

Project Name

1/27/93

Clean up equivalent to closure was conducted. But never approved by EDEM, because was not RCRA closure.

---

2 piles of rubber only piles - removed in 1984 -

---

drums of material were inside east building and went to Purdue U. to treat this with patented process.

3 months '91

East side warehouse used for All[illegible] recycling. In 1991 were storing industrial staging batteries quit after inspection. 1/24/[illegible] WAS army surplus

Field Logbook No. NV-001 Date

Project No.

Project Name

site [illegible]

1525 Break and start walkthrough

Receiving Area - truck and walk-ins Dock Floor has some cracks. when running go into sand or into Staging Area

Dock covered. Mucky on floor

Staging Area - wet lots of batteries 6 ft displays several industrial batteries

Photo 1 North Staging Area

Photo 2 West " "

3 NW

Floor is pretty good

Processing Area

P 4 SSW Floor looks ok

5 SW

6 S

1/27/93

Field Logbook No. NV-001 Date 1/27/93

Project No.

Project Name

Trough is steel

Concrete has been rode

some sludge on floor SE

WWT Rec- steel tank P8E

concrete sump P9 NNW

$MgSO_4$ crystals

on the outside

of the tanks

P10 NW

P11 NE

floor concrete is ~2' thick

copper battery cables sold

Tumbler - lead stockpile P12 NE

drums from where to floor [illegible] P13 SE

Floater - pieces/parts on floor P14 W

Field Logbook No. NV-001 Date

Project No.

Project Name

Hard Rubber, plastic collection

Container P15 N

P16 NW haul trail/mud

P17 SW manual operating area

Outside 2 staging - 3 days

manual opening

sump

P18 WNW P19 W

P20 E back end of plastic trailer

P21 WSW SW sump

P22 SW trailer for lead

P23 NE old rubber area - W

trailer

P24 ENE old rubber area

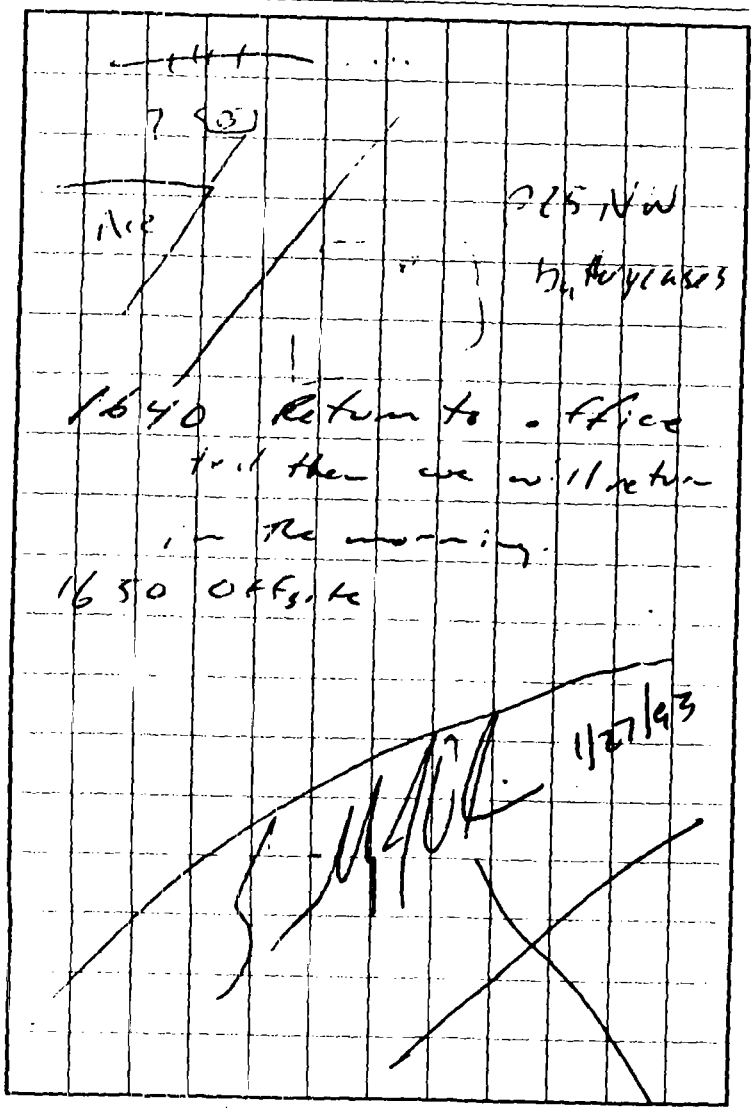
some cracks

1/27/93

Field Logbook No. NV-001 Date

Project No.

Project Name



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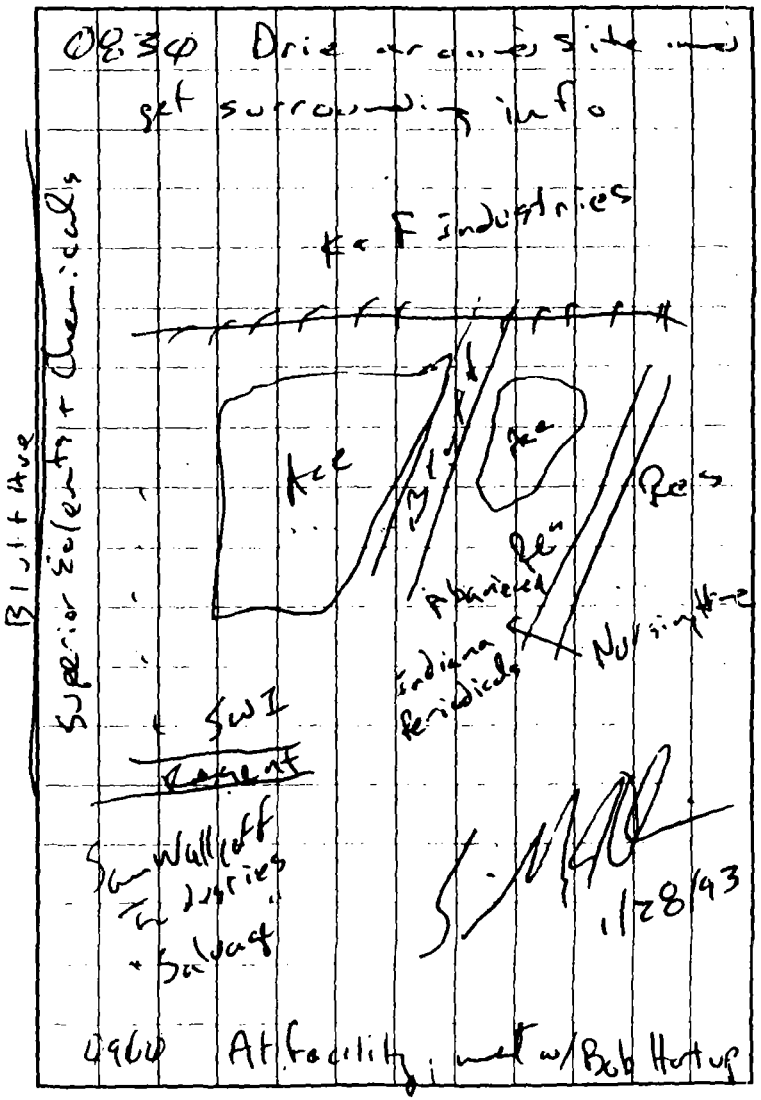
Field Logbook No. NV-001 Date 1/28/93

Project No. 34RQ5Ø32 INIG

Project Name Ace Battery VSI



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Field Logbook No. NV-001 Date 1/28/93

Project No.

Project Name

UST's — none

Volume float/sink sep tanks 300 in 40 g ?

Air permits — none

Sampling of storage tanks no liquid [illegible]

Waste handling prior to system — limestone vat

how often HPf/s changed 2/3 weeks

• 266(a) regs: they think they are a generator and not a recycler.

— Was coal yard before battery salvage

— east side was grain building used ~1910 →

No water wells on property

Superior has had a spill - drilled wells

Did take soil samples from M[illegible] St. / Cemetery / Bluff Road

80

Field Logbook No. NV-001 Date

Project No.

Project Name

Put curb in 8 or 9 years ago

→ Close of mtg talk about how they will get a copy of the report.

1030 Off-site

[signature] 1/28/93

81